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United Nations

Report of the Committee on the Peaceful Uses of Outer Space

Fifty-fourth session (1-10 June 2011)

General Assembly

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Chapter I

Introduction

1. The Committee on the Peaceful Uses of Outer Space held its fifty-fourth session in Vienna from 1 to 10 June 2011. The officers of the Committee were as follows:

Chair:	Dumitru-Dorin Prunariu (Romania)
First Vice-Chair:	Nomfuneko Majaja (South Africa)
Second Vice-Chair/Rapporteur:	Raimundo González Aninat (Chile)

2. The unedited verbatim transcripts of the meetings of the Committee are contained in documents COPUOS/T.628-643.

3. A commemorative segment of the fifty-fourth session of the Committee, on the occasion of the fiftieth anniversary of human space flight and the fiftieth anniversary of the Committee on the Peaceful Uses of Outer Space, was held on 1 June 2011, open to all States Members of the United Nations. A summary of the commemorative segment and the text of the declaration adopted on 1 June are contained in annex I to the present report.

A. Meetings of subsidiary bodies

4. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space had held its forty-eighth session in Vienna from 7 to 18 February 2011, under the chairmanship of Ulrich Huth (Germany). The report of the Subcommittee was before the Committee (A/AC.105/987).

5. The Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space had held its fiftieth session in Vienna from 28 March to 8 April 2011, under the chairmanship of Ahmad Talebzadeh (Islamic Republic of Iran). The report of the Subcommittee was before the Committee (A/AC.105/990). The unedited verbatim transcripts of the meetings of the Subcommittee are contained in documents COPUOS/Legal/T.820-838.

B. Adoption of the agenda

6. At its opening meeting, the Committee adopted the following agenda:

1. Opening of the session.
2. Adoption of the agenda.
3. Statement by the Chair.
4. General exchange of views.
5. Ways and means of maintaining outer space for peaceful purposes.

6. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).

7. Report of the Scientific and Technical Subcommittee on its forty-eighth session.

8. Report of the Legal Subcommittee on its fiftieth session.

9. Spin-off benefits of space technology: review of current status.

10. Space and society.

11. Space and water.

12. Space and climate change.

13. Use of space technology in the United Nations system.

14. Future role of the Committee.

15. Other matters.

16. Report of the Committee to the General Assembly.

C. Membership

7. In accordance with General Assembly resolutions 1472 A (XIV), 1721 E (XVI), 3182 (XXVIII), 32/196 B, 35/16, 49/33, 56/51, 57/116, 59/116, 62/217 and 65/97 and decision 45/315, the Committee on the Peaceful Uses of Outer Space was composed of the following 70 States: Albania, Algeria, Argentina, Australia, Austria, Belgium, Benin, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Cameroon, Canada, Chad, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Kenya, Lebanon, Libyan Arab Jamahiriya, Malaysia, Mexico, Mongolia, Morocco, Netherlands, Nicaragua, Niger, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Senegal, Sierra Leone, Slovakia, South Africa, Spain, Sudan, Sweden, Switzerland, Syrian Arab Republic, Thailand, Tunisia, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela (Bolivarian Republic of) and Viet Nam.

D. Attendance

8. Representatives of the following 61 States members of the Committee attended the session: Algeria, Argentina, Australia, Austria, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Kenya, Lebanon, Malaysia, Mexico, Mongolia, Morocco, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Senegal, Slovakia, South Africa, Spain, Sudan, Sweden, Switzerland,

Syrian Arab Republic, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela (Bolivarian Republic of) and Viet Nam.

9. At its 630th meeting, on 2 June, the Committee decided to invite, at their request, observers for Afghanistan, Armenia, Azerbaijan, Belarus, Costa Rica, Croatia, Denmark, the Dominican Republic, Ghana, Guatemala, Israel, Jordan, Oman, Panama, the Republic of Moldova, Sri Lanka, Uganda, the United Arab Emirates and Yemen, as well as the Holy See, to attend its fifty-fourth session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that it would not involve any decision of the Committee concerning status.

10. Also at its 630th meeting, the Committee decided to invite, at its request, the observer for Palestine to attend its fifty-fourth session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that it would not involve any decision of the Committee concerning status.

11. At the same meeting, the Committee decided to invite, at its request, the observer for the European Union to attend its fifty-fourth session, on the understanding that doing so would be without prejudice to further requests of that nature and that it would not involve any decision of the Committee regarding status.

12. Observers for the International Atomic Energy Agency and the International Telecommunication Union (ITU) attended the session.

13. The session was attended by observers for the following intergovernmental organizations with permanent observer status with the Committee: the Asia-Pacific Space Cooperation Organization, the European Organisation for Astronomical Research in the Southern Hemisphere, the European Space Agency, the European Telecommunications Satellite Organization, the International Institute for the Unification of Private Law (Unidroit), the International Mobile Satellite Organization, the International Telecommunications Satellite Organization and the Regional Centre for Remote Sensing of North African States.

14. The session was also attended by observers for the following non-governmental organizations with permanent observer status with the Committee: the Association of Space Explorers, the European Space Policy Institute, the International Academy of Astronautics, the International Astronautical Federation, the International Astronomical Union, the International Institute of Space Law, the International Society for Photogrammetry and Remote Sensing, the International Space University, the Prince Sultan bin Abdulaziz International Prize for Water, the Secure World Foundation, the Space Generation Advisory Council and the World Space Week Association.

15. A list of representatives of States members of the Committee, States not members of the Committee, United Nations entities and other organizations attending the session is contained in A/AC.105/2011/INF/1.

E. General statements

16. Statements were made by representatives of the following States members of the Committee during the general exchange of views: Algeria, Argentina, Austria, Brazil, Burkina Faso, Canada, Chile, China, Cuba, France, Germany, Greece, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kenya, Malaysia, Mexico, Nigeria, Pakistan, Peru, Philippines, Poland, Republic of Korea, Romania, Russian Federation, Saudi Arabia, South Africa, Spain, Sudan, Switzerland, Syrian Arab Republic, Thailand, Turkey, Ukraine, United States and Venezuela (Bolivarian Republic of). The representative of the Islamic Republic of Iran made a statement on behalf of the Group of 77 and China. The representative of Colombia made a statement on behalf of the Group of Latin American and Caribbean States. The representative of Hungary made a statement on behalf of the European Union. The observers for Azerbaijan, Ghana, Jordan and the United Arab Emirates also made statements. Statements were also made by the observers for the Asia-Pacific Space Cooperation Organization, the European Space Policy Institute, the International Astronautical Federation (IAF), the Secure World Foundation, the Space Generation Advisory Council and the World Space Week Association.

17. At the 628th meeting, on 2 June, the Chair delivered a statement highlighting the role played by the Committee in promoting efforts to further space exploration and in bringing the benefits of space technology to Earth. He stressed the need to support regional and interregional cooperation in the field of space activities and the need to ensure closer coordination between the Committee and other intergovernmental bodies involved in the global development agenda of the United Nations.

18. At the 632nd meeting, the Director of the Office for Outer Space Affairs of the Secretariat briefed the Committee on the work carried out by the Office during the past year and its current financial status and stressed the importance of the availability of financial and other resources for the successful implementation of the Office's programme of work.

19. The Committee welcomed Tunisia as a new member and noted its active participation in the Committee and its Subcommittees. The Committee also welcomed the International Association for the Advancement of Space Safety (IAASS) as a new non-governmental organization with permanent observer status with the Committee.

20. In connection with the commemoration of the fiftieth anniversary of human space flight, the Committee observed a minute of silence in respectfully recalling that the human exploration of outer space had not been without sacrifice and remembering the men and women who had lost their lives in the pursuit of expanding humanity's frontiers.

21. The Committee conveyed its condolences to the peoples of Australia, Brazil, Japan, Myanmar, New Zealand, Pakistan, Saudi Arabia, Sudan and the United States for the natural disasters that had recently taken many lives and caused great damage in those countries. The Committee stressed the critical role that space-based systems could play in supporting disaster management by providing accurate and timely information and communication support, and emphasized the need to continue

building capacity in the use of space technology applications at the international, regional and national levels.

22. The Committee congratulated the United States on the successful landing and final mission of the space shuttle Endeavour and on the thirtieth anniversary of the space shuttle programme and its contributions to space exploration and international cooperation in space activities.

23. The Committee heard the following presentations:

(a) "Effectiveness of satellite data for disasters: the great east Japan earthquake", by the representative of Japan;

(b) "Satellite-based operational monitoring of the environment in Mexico", by the representative of Mexico;

(c) "The Mexican Space Agency and the new Mexican satellite system MEXSAT", by the representative of Mexico;

(d) "Space medicine: from the flight of Yuri Gagarin to interplanetary expedition", by the representative of the Russian Federation;

(e) "The Colombian Space Commission: a strategy for the sustainable development of Colombia", by the representative of Colombia;

(f) "RESOURCESAT-2: continuing global services in Earth observation", by the representative of India;

(g) "100th anniversary of academician Mikhail Yangel, missile and space systems chief designer", by the representative of Ukraine;

(h) "International Academy of Astronautics fiftieth anniversary and heads of space agencies summit", by the observer for the International Academy of Astronautics.

24. The Committee noted with appreciation the successful completion of the 61st International Astronautical Congress, held in Prague from 27 September to 1 October 2010 and attended by more than 3,500 participants. The Committee noted with satisfaction that the 62nd International Astronautical Congress would be hosted by the Government of South Africa from 3 to 7 October 2011.

25. The Committee noted with appreciation a number of events held in connection with the commemorations, organized by the Office for Outer Space Affairs with generous support from and in cooperation with member States and permanent observer organizations, in particular the international exhibition on fifty years of human space flight, to be held at the Vienna International Centre throughout the month of June; the international astronauts and cosmonauts panel, organized in cooperation with the City of Vienna and held on 2 June at Vienna City Hall; the Space Day open day held at the Vienna International Centre on 4 June; the numerous space tours organized in cooperation with the Visitors' Centre of the United Nations Office at Vienna; and the "space food days" from 1 to 10 June, carried out in cooperation with the catering service of the Vienna International Centre.

26. The Committee also noted with appreciation the special symposium held on 3 June and organized by IAF, entitled "Special dual anniversary", which reviewed the history of cooperation between the Committee and IAF.

F. Adoption of the report of the Committee

27. After considering the various items before it, the Committee, at its 643rd meeting, on 10 June, adopted its report to the General Assembly containing the recommendations and decisions set out below.

Chapter II

Recommendations and decisions

A. Ways and means of maintaining outer space for peaceful purposes

28. In accordance with paragraph 34 of General Assembly resolution 65/97, the Committee continued its consideration, as a matter of priority, of ways and means of maintaining outer space for peaceful purposes.

29. The representatives of Brazil, Greece, Indonesia, Italy, Japan, the Russian Federation, the United States and Venezuela (Bolivarian Republic of) made statements under the item. During the general exchange of views, statements relating to the item were also made by representatives of other member States, the representative of Colombia on behalf of the Group of Latin American and Caribbean States, the representative of the Islamic Republic of Iran on behalf of the Group of 77 and China and the representative of Hungary on behalf of the European Union.

30. The Committee heard a presentation entitled "Space Security Index 2011", by the representative of Canada.

31. The Committee agreed that, through its work in the scientific, technical and legal fields, it had a fundamental role to play in ensuring that outer space was maintained for peaceful purposes.

32. The Committee agreed that, during its consideration of the matter, the Committee should continue to consider ways to promote regional and interregional cooperation and the role that space technology could play in the implementation of the recommendations of the World Summit on Sustainable Development.[1]

33. The Committee emphasized that regional and interregional cooperation and coordination in the field of space activities were essential to strengthen the peaceful uses of outer space, to assist States in the development of their space capabilities and to contribute to the achievement of the Millennium Development Goals.[2]

34. The Committee noted with satisfaction that the Sixth Space Conference of the Americas had been held in Pachuca, Mexico, from 15 to 19 November 2010, hosted by the Government of Mexico. The Conference had concluded with the adoption of the Pachuca Declaration which, inter alia, called for the creation of a space technical advisory group made up of representatives of space agencies and/or Government agencies responsible for space matters in the countries of the continent, which should provide advisory assistance to the work of the Space Conference of the Americas and its respective pro tempore secretariats. The Committee took note of the fact that the Government of Mexico assumed the pro tempore secretariat of the Sixth Space Conference of the Americas for the period 2011-2013. The Committee noted with appreciation the preparatory work for the Conference carried out by the

[1] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum).

[2] A/56/326, annex.

Government of Ecuador as pro tempore secretariat of the Fifth Space Conference of the Americas and by the International Group of Experts.

35. The Committee also noted with appreciation that the fourth African Leadership Conference on Space Science and Technology for Sustainable Development, on the theme "Building a shared vision for space in Africa", would be hosted by the Government of Kenya and be held in Mombasa from 26 to 28 September 2011. In that regard, the Committee noted the cooperation between the Office for Outer Space Affairs and the Government of Kenya on activities to be organized in connection with the Conference.

36. The Committee further noted with satisfaction that the seventeenth session of the Asia-Pacific Regional Space Agency Forum had been held in Melbourne, Australia, from 23 to 26 November 2010. The theme of the session was "The role of space technology and industry in addressing climate change". The eighteenth session of the Forum would be jointly organized by the Government of Singapore and the Government of Japan and be hosted by Singapore from 6 to 9 December 2011.

37. The Committee also noted that the fourth meeting of the Council of the Asia-Pacific Space Cooperation Organization (APSCO) had been held in Pattaya, Thailand, on 26 and 27 January 2011, and that Turkey had become the most recent member State of APSCO.

38. Some delegations emphasized the following principles: equal and non-discriminatory access to outer space and equal conditions for all States, irrespective of their level of scientific, technical and economic development; non-appropriation of outer space, including the Moon and other celestial bodies, by claim of sovereignty, use, occupation or any other means; non-militarization of outer space and its exploitation strictly for the improvement of living conditions and peace on the planet; and regional cooperation to promote space activities, as established by the General Assembly and other international forums.

39. Some delegations were of the view that it was necessary to ensure greater security in outer space through the development and implementation of transparency and confidence-building measures.

40. Some delegations were of the view that international cooperation in space activities should be enhanced in order to promote all aspects of the peaceful utilization of outer space and to improve present and future activities in that area with a view to contributing to global economic, social and economic prosperity and sustainable development, particularly for developing countries.

41. Some delegations were of the view that, in order to develop and maintain applications for the peaceful uses of outer space, it was crucial to build concrete bilateral and multilateral ties between interested parties at both the regional and interregional levels.

42. Some delegations were of the view that, in the light of the continually growing awareness among States of the potential, importance and impact of space activities, all forums in which space-related issues were addressed should be enhanced and strengthened in order to ensure that all States took part in those activities on the basis of equality.

43. The view was expressed that, in order to ensure that the benefits of outer space activities reached all States and that the results of innovations and applications of space technology were maximized, inclusive development should be given priority in the exploration and use of outer space with respect to the space environment and equal access to outer space by all States, taking into consideration the interest of humankind.

44. The view was expressed that the exploration and peaceful use of outer space was not of a competitive nature, setting spacefaring nations against non-spacefaring nations, but rather should be a cooperative endeavour benefiting the international community as a whole.

45. The view was expressed that outer space could be maintained for peaceful purposes through cooperation in space science and technology and exploration activities, as well as through human presence in space.

46. The view was expressed that, in order to maintain the benefits derived from outer space activities, States should adhere to the existing international legal framework governing outer space activities and implement the guidelines designed to improve conduct in outer space.

47. Some delegations were of the view that the existing legal regime with respect to outer space was not adequate to prevent the placement of weapons in outer space and address the issues of the space environment and that it was important to further develop international space law in order to maintain outer space for peaceful purposes.

48. The view was expressed that the existing norms of space law had some ambiguity with regard to the non-militarization of outer space, such as the first paragraph of article IV of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.[3]

49. Some delegations were of the view that, in order to ensure that outer space was used peacefully and to prevent its militarization, the elaboration of a special binding international legal instrument was necessary.

50. Some delegations were of the view that, in order to maintain the peaceful nature of space activities and prevent the placement of weapons in outer space, it was essential for the Committee to enhance its cooperation and coordination with other bodies and mechanisms of the United Nations system.

51. Some delegations were of the view that the conclusion of the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects, which had been presented by China and the Russian Federation to the Conference on Disarmament in 2008, would prevent an arms race in outer space.

52. Some delegations were of the view that the Committee had been created exclusively to promote international cooperation with respect to the peaceful uses of outer space and that disarmament issues were more appropriately dealt with in other

[3] United Nations, *Treaty Series*, vol. 610, No. 8843.

forums, such as the First Committee of the General Assembly and the Conference on Disarmament.

53. The Committee noted the ongoing work carried out by the European Union on a code of conduct for outer space activities, which included consultations with other States with a view to reaching consensus on a text that would be acceptable to the greatest possible number of States, and that the revised version of the draft text[4] had been adopted by the European Union in September 2010.

54. Some delegations were of the view that the draft code of conduct included transparency and confidence-building measures and reflected a comprehensive approach to safety and security in outer space guided by the following principles: freedom of access to space for all for peaceful purposes, preservation of the security and integrity of space objects in orbit and due consideration for the legitimate security and defence interests of States.

55. The Committee noted that the General Assembly, in paragraph 2 of its resolution 65/68, requested the Secretary-General to establish, on the basis of equitable geographical distribution, a group of governmental experts to conduct a study, commencing in 2012, on outer space transparency and confidence-building measures. In that connection, some delegations were of the view that the Working Group on the Long-Term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee should coordinate its activities with those activities of the group of governmental experts relevant to the Working Group's mandate on voluntary measures for the safety and sustainability of space activities.

56. The Committee recommended that, at its fifty-fifth session, in 2012, consideration should continue, on a priority basis, of the item on ways and means of maintaining outer space for peaceful purposes.

B. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space

57. The Committee considered the agenda item "Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)" in accordance with General Assembly resolution 65/97.

58. The representatives of Canada and Japan made statements under the item. Representatives of other member States also made statements relating to the item during the general exchange of views and the discussion on the report of the Scientific and Technical Subcommittee on its forty-eighth session.

59. The Committee heard a presentation entitled "The space generation working groups: input from the next generation of space leaders on the development of space" by the observer for the Space Generation Advisory Council.

60. The Committee endorsed the recommendations of the Scientific and Technical Subcommittee, submitted to the Subcommittee at its forty-eighth session by its

[4] Available from www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf.

Working Group of the Whole, which had been reconvened under the chairmanship of S. K. Shivakumar (India) to consider, inter alia, the implementation of the recommendations of UNISPACE III (A/AC.105/987, paras. 62 and 63 and annex I, sect. C, paras. 7-9 and 11).

61. The Committee noted with appreciation that the Action Team on Public Health, co-chaired by Canada and India, had submitted the final report of the Action Team (A/AC.105/C.1/L.305) for consideration by the Subcommittee at its forty-eighth session, and noted that the Secretariat would transmit the report to the World Health Organization (WHO), with an invitation to WHO to report to the Subcommittee at its forty-ninth session on the possible development of long-term tele-epidemiology and tele-health activities, and that consideration would be given to the creation of an international committee on tele-epidemiology and tele-health.

62. The Committee had before it for its consideration a conference room paper entitled "Draft contribution of the Committee on the Peaceful Uses of Outer Space to the United Nations Conference on Sustainable Development: harnessing space-derived geospatial data for sustainable development" (A/AC.105/2011/CRP.9). The Committee endorsed the draft contribution contained in the conference room paper and agreed that the text should constitute the contribution of the Committee to the United Nations Conference on Sustainable Development, to be held in Rio de Janeiro, Brazil, in 2012. The Committee noted that the Secretariat would submit the report in all official languages of the United Nations to the Division for Sustainable Development of the Department of Economic and Social Affairs, which serves as the secretariat for the Conference.

63. The Committee had before it a report on international cooperation in promoting the use of space-derived geospatial data for sustainable development (A/AC.105/973) and noted that the document constituted the final report under the agenda item on international cooperation in promoting the use of space-derived geospatial data for sustainable development, consideration of which had been concluded at the fifty-third session of the Committee.

64. The Committee noted that a regional centre for space science and technology education for Western Asia, in Arabic language and affiliated to the United Nations, would be established in Jordan by the end of 2011.

65. The Committee noted with appreciation the publication of the report on the events of World Space Week 2010 (ST/SPACE/56), prepared by the World Space Week Association in cooperation with the Office for Outer Space Affairs.

C. Report of the Scientific and Technical Subcommittee on its forty-eighth session

66. The Committee took note with appreciation of the report of the Scientific and Technical Subcommittee on its forty-eighth session (A/AC.105/987), which contained the results of its deliberations on the items considered by the Subcommittee in accordance with General Assembly resolution 65/97.

67. The Committee expressed its appreciation to Ulrich Huth (Germany) for his able leadership during the forty-eighth session of the Subcommittee.

68. The representatives of Canada, China, Germany, Indonesia, Italy, Japan, Mexico, Nigeria, Portugal, the Russian Federation, the United States and Venezuela (Bolivarian Republic of) made statements under the item. During the general exchange of views, statements relating to that item were also made by other member States. Statements were also made under the item by the representative of Colombia on behalf of the Group of Latin American and Caribbean States and the representative of Venezuela (Bolivarian Republic of) on behalf of the Group of 77 and China.

69. The Committee heard the following presentations:

(a) "Operational services based on space data in support of seismic risk management", by the representative of Italy;

(b) "The International Space Station", by the representative of the United States;

(c) "Example of the application of satellites under the great east Japan earthquake and others", by the representative of Japan;

(d) "Human space flight", by the representative of the United States;

(e) "Italian contribution to the Alpha Magnetic Spectrometer (AMS-2)", by the representative of Italy;

(f) "Space debris mitigation: the Russian experience", by the representative of the Russian Federation;

(g) "About the IGMASS project promotion in the year of the half-century anniversary of the first manned flight", by the representative of the Russian Federation;

(h) "World Space Week Report and recognition", by the observer for the World Space Week Association;

(i) "Sustainable use of space through orbital debris control", by the observer for the International Academy of Astronautics;

(j) "Results of the 2011 International Academy of Astronautics Planetary Defence Conference", by the observer for the International Academy of Astronautics.

1. United Nations Programme on Space Applications

(a) Activities of the United Nations Programme on Space Applications

70. The Committee took note of the discussion of the Subcommittee under the item on the United Nations Programme on Space Applications, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 30-53 and annex I, paras. 2 and 3).

71. The Committee endorsed the decisions and recommendations of the Subcommittee and its Working Group of the Whole, which had been convened under the chairmanship of S. K. Shivakumar (India) to consider the item (A/AC.105/987, paras. 33 and 45).

72. The Committee took note of the activities of the Programme carried out in 2010, as presented in the report of the Scientific and Technical Subcommittee (A/AC.105/987, paras. 41-44) and in the report of the Expert on Space Applications (A/AC.105/980, annex I).

73. The Committee expressed its appreciation to the Office for Outer Space Affairs for the manner in which the activities of the Programme had been implemented. The Committee also expressed its appreciation to the Governments and intergovernmental and non-governmental organizations that had sponsored those activities.

74. The Committee noted with satisfaction that further progress was being made in the implementation of the activities of the Programme for 2011, as described in the report of the Subcommittee (A/AC.105/987, para. 45).

75. The Committee noted with satisfaction that the Office for Outer Space Affairs was helping developing countries and countries with economies in transition to participate in and benefit from activities being carried out under the Programme.

76. The Committee noted with concern the limited financial resources available to implement the Programme and appealed to States and organizations to continue supporting the Programme through voluntary contributions.

77. The Committee noted with appreciation the implementation of the Programme's Basic Space Science Initiative and Basic Space Technology Initiative (see A/AC.105/2011/CRP.14), as well as its preparation of the Human Space Technology Initiative (see A/AC.105/2011/CRP.13), aimed at enhancing the participation of developing countries in activities at the International Space Station.

(i) Conferences, training courses and workshops of the United Nations Programme on Space Applications

78. The Committee endorsed the workshops, training courses, symposiums and expert meetings planned for the remaining part of 2011 and expressed its appreciation to Argentina, Austria, Canada, Iran (Islamic Republic of), Malaysia, Nigeria, South Africa, the Syrian Arab Republic, Viet Nam and the United Arab Emirates, as well as to the European Space Agency and IAF, for co-sponsoring, hosting and supporting those activities (see A/AC.105/980, annex II).

79. The Committee noted with appreciation that the first United Nations Expert Meeting on the Human Space Technology Initiative would be held in Putrajaya, Malaysia, in the fourth quarter of 2011 and expressed its appreciation to the Government of Malaysia, the National Space Agency of Malaysia and the National University of Malaysia for acting as host to and supporting that meeting.

80. The Committee endorsed the programme of workshops, training courses, symposiums and expert meetings related to natural resources management, basic space technology, human space technology, space weather, global navigation satellite systems (GNSS), socio-economic benefits and space law to be held in 2012 for the benefit of developing countries.

81. The Committee noted with appreciation that the host countries of the regional centres for space science and technology education, affiliated to the United Nations, were providing the centres with significant financial and in-kind support.

(ii) Long-term fellowships for in-depth training

82. The Committee expressed its appreciation to the Politecnico di Torino, the Istituto Superiore Mario Boella and the Istituto Elettrotecnico Nazionale Galileo

Ferraris for the fellowships that they provided for postgraduate studies on GNSS and related applications.

83. The Committee expressed its appreciation to the Government of Japan and the Kyushu Institute of Technology for establishing the United Nations/Japan Long-term Fellowship Programme on Nanosatellite Technologies under the framework of the Basic Space Technology Initiative of the Programme.

84. The Committee noted that it was important to increase opportunities for in-depth education in all areas of space science, technology and applications and space law through long-term fellowships and urged Member States to make such opportunities available at their relevant institutions.

(iii) Technical advisory services

85. The Committee noted with appreciation the technical advisory services provided under the United Nations Programme on Space Applications in support of activities and projects promoting regional cooperation in space applications, as referred to in the report of the Expert on Space Applications (A/AC.105/980, paras. 43-52).

(b) International Space Information Service

86. The Committee noted with satisfaction that the publication entitled *Highlights in Space 2010* had been issued on CD-ROM.

87. The Committee noted with satisfaction that the Secretariat had continued to enhance the International Space Information Service and the website of the Office for Outer Space Affairs (www.unoosa.org).

(c) Regional and interregional cooperation

88. The Committee noted with satisfaction that the United Nations Programme on Space Applications continued to emphasize, promote and foster cooperation with Member States at the regional and global levels to support the regional centres for space science and technology education, affiliated to the United Nations. The highlights of the activities of the regional centres supported under the Programme in 2010 and the activities planned for 2011 and 2012 were presented in the report of the Expert on Space Applications (A/AC.105/980, annexes I-III).

(d) International Satellite System for Search and Rescue

89. The Committee noted with satisfaction that the International Satellite System for Search and Rescue (COSPAS-SARSAT) currently had 41 member States and two participating organizations and that it had six polar-orbiting and five geostationary satellites that provided worldwide coverage for emergency beacons. The Committee also noted that since 1982 COSPAS-SARSAT had provided assistance in rescuing at least 30,773 persons in 8,406 search and rescue events and that in 2010 the system's alert data had helped to save 2,398 lives in 660 search and rescue events worldwide.

90. The Committee further noted that the use of satellites in medium-Earth orbit continued to be explored, with a view to improving international satellite-aided search and rescue operations.

91. The Committee welcomed the continued efforts to enhance COSPAS-SARSAT, including through the testing of global positioning system satellites and improving the capabilities of beacons to best take advantage of medium-Earth orbit satellites.

2. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment

92. The Committee took note of the discussion of the Subcommittee under this agenda item, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 65-75).

93. In the course of the discussion, delegations reviewed national and cooperative programmes on remote sensing, providing examples of national programmes and bilateral, regional and international cooperation, that contribute to enhancing the potential of remote-sensing technology and to enhancing capacity-building in developing countries in the use of remote-sensing technology to advance their socio-economic development.

94. The Committee recognized the important role played by international intergovernmental organizations in promoting international cooperation in the use of remote-sensing technology, such as the Committee on Earth Observation Satellites (CEOS) and the Group on Earth Observations.

95. The Committee noted the important role played in promoting regional cooperation in the use of remote-sensing technology by regional organizations such as APSCO and its remote-sensing satellite project, and the Asia-Pacific Regional Space Agency Forum and its initiatives the Sentinel Asia Project, the Space Application for Environment programme and the Regional Readiness Review for Key Climate Missions.

96. The Committee noted that the next plenary meeting of CEOS would be held in Lucca, Italy, on 8 and 9 November 2011, hosted by the Italian Space Agency, the current chair of CEOS.

3. Space debris

97. The Committee took note of the discussion of the Subcommittee under the agenda item on space debris, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 76-96).

98. The Committee endorsed the decisions and recommendations of the Subcommittee on this item (A/AC.105/987, paras. 81, 88 and 89).

99. The Committee noted with appreciation that some States were already implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee and/or the Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines and that other States had developed their own space debris mitigation standards based on those guidelines. The Committee also noted that other States were using the IADC Guidelines and the European Code of Conduct for Space Debris Mitigation as reference points in their regulatory frameworks for national space activities.

100. Some delegations called on the Scientific and Technical Subcommittee to continue its thorough consideration of the issue of space debris mitigation, in particular by paying greater attention to debris coming from platforms with nuclear power sources in outer space and collisions of space objects with space debris and their derivatives, as well as to improve the technology and the collaborative networks for monitoring of space debris.

101. Some delegations were of the view that the future of space activities largely depended on space debris mitigation and urged those countries that had not yet done so to implement the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.

102. Some delegations were of the view that further studies and research should be carried out, including in the areas of technology for space debris observation, space debris environmental modelling and technologies to protect space systems from space debris and to limit the creation of additional space debris, in order to enhance the Guidelines and to keep them up to date with new techniques and capabilities of detection and reduction of space debris, in accordance with General Assembly resolution 62/217.

103. Some delegations were of the view that the Space Debris Mitigation Guidelines of the Committee should be further developed and that the Scientific and Technical Subcommittee and the Legal Subcommittee should cooperate in developing legally binding rules relating to space debris.

104. Some delegations were of the view that reports on national research on space debris, safety of space objects with nuclear power sources on-board and problems relating to their collision with space debris did not contain replies from the States that were largely responsible for creating space debris, including debris from platforms with nuclear power sources.

105. Some delegations were of the view that it was necessary to continue improving the Space Debris Mitigation Guidelines of the Committee. The lack of clear requirements and the use of phrases such as "to the extent possible" provided a form of protection for those countries that had traditionally used technology without any restrictions or controls and, in some cases, without regard for human life or the environment.

106. Some delegations were of the view that it would be beneficial for Member States to exchange information on measures to reduce the creation and the proliferation of space debris; collection, sharing and dissemination of data on space objects; and re-entry notifications.

4. Space-system-based disaster management support

107. The Committee took note of the discussion of the Subcommittee under the agenda item on space-system-based disaster management support, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 97-114 and annex I, paras. 12 and 13).

108. The Committee endorsed the decisions and recommendations of the Subcommittee and its Working Group of the Whole, which was convened, inter alia, to consider this item (A/AC.105/987, para. 114 and annex I, para. 1).

109. The Committee noted with satisfaction the progress reflected in the reports on the activities carried out in 2010 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) (A/AC.105/981 and A/AC.105/985).

110. The Committee noted with appreciation the inauguration of the Beijing office of UN-SPIDER on 10 November 2010.

111. The Committee noted with appreciation the cash and in-kind contributions made by the Governments of Austria, China, Germany, the Republic of Korea and Turkey to support the activities of the UN-SPIDER programme in 2010.

112. The Committee noted with satisfaction that the Office for Outer Space Affairs had to date signed cooperation agreements for the establishment of UN-SPIDER regional support offices with Algeria, Iran (Islamic Republic of), Nigeria, Pakistan, Romania and Ukraine, as well as with the Asian Disaster Reduction Center, based in Kobe, Japan; the Regional Center for Mapping of Resources for Development, based in Nairobi; the University of the West Indies, based in St. Augustine, Trinidad and Tobago, and the Water Center for the Humid Tropics of Latin America and the Caribbean, based in Panama City. The Committee noted with appreciation that the Governments of Colombia, Indonesia, South Africa and Turkey had each made an offer to host a UN-SPIDER regional support office.

113. The Committee noted the proposed workplan for the UN-SPIDER programme for the biennium 2012-2013 (A/AC.105/2011/CRP.16).

114. The Committee recognized that Member States should be encouraged to provide, on a voluntary basis, consistent with General Assembly resolution 65/97, the programme with the necessary additional resources to ensure that greater support could be provided to Member States by UN-SPIDER and its regional support offices.

115. The Committee noted with satisfaction the increase in the availability of space-based information to support disaster management, particularly emergency response activities, through several existing mechanisms, such as the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also called the International Charter on Space and Major Disasters), the Sentinel Asia project and the Global Monitoring for Environment and Security (GMES) Services and Applications for Emergency Response (SAFER) initiative in Europe, as well as COSPAS-SARSAT.

116. Some delegations expressed the view that, by relying on voluntary contributions alone, the UN-SPIDER programme might lack long-term sustainability.

5. Recent developments in global navigation satellite systems

117. The Committee took note of the discussion of the Subcommittee under the agenda item on recent developments in global navigation satellite systems, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 115-134).

118. The Committee noted with appreciation that the International Committee on Global Navigation Satellite Systems (ICG) continued to make significant progress towards the goals of encouraging compatibility and interoperability among global

and regional space-based positioning, navigation and timing systems and promoting the use of GNSS and their integration into infrastructures, particularly in developing countries.

119. The Committee noted that ICG supported multi-GNSS campaigns and that an important new development was the agreement of the Providers' Forum to liaise with relevant international bodies to ensure that receiver output formats for future GNSS signals were unambiguously defined.

120. The Committee noted with appreciation that the achievements of the ICG Providers' Forum, as reflected in the publication entitled *Current and Planned Global and Regional Navigation Satellite Systems and Satellite-based Augmentation Systems* (ST/SPACE/50), was made available for training and information dissemination on global applications of GNSS and their benefits for humanity.

121. The Committee noted with appreciation the activities conducted and/or planned in the framework of the ICG workplan focusing on building capacity, specifically in deploying instruments for the International Space Weather Initiative, developing a GNSS education curriculum, utilizing regional reference frames and applying GNSS in various areas to support sustainable development, as reflected in the report of the Secretariat (A/AC.105/996).

122. Some delegations reiterated their commitment to provide additional funds in the form of voluntary contributions to the Office for Outer Space Affairs in support of the programme on GNSS applications, including the meetings and activities of ICG and its Providers' Forum.

123. The Committee noted with appreciation that the Fifth Meeting of ICG and the sixth meeting of its Providers' Forum had been held in Turin, Italy, in October 2010 (see A/AC.105/982).

124. The Committee expressed its appreciation for the work undertaken by the Office for Outer Space Affairs in assisting with the planning and organization of the meetings of ICG and for its continued support as executive secretariat for ICG and its Providers' Forum.

125. The Committee noted that the sixth meeting of ICG would be hosted by Japan in Tokyo from 5 to 9 September 2011, and that China had expressed its interest in hosting the ICG meeting in 2012.

6. Use of nuclear power sources in outer space

126. The Committee took note of the discussion of the Subcommittee under the agenda item on the use of nuclear power sources in outer space, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 135-150).

127. The Committee endorsed the decisions and recommendations of the Subcommittee and the Working Group on the Use of Nuclear Power Sources in Outer Space, reconvened under the chairmanship of Sam A. Harbison (United Kingdom) (A/AC.105/987, para. 150 and annex II, paras. 9-11).

128. Some delegations were of the view that the Safety Framework for Nuclear Power Source Applications in Outer Space represented a significant advance in the development of safe nuclear power source applications and that the implementation of the Safety Framework by Member States and international intergovernmental

organizations would provide assurance to the global public that space nuclear power source applications were being developed, launched and used in a safe manner.

129. Some delegations expressed the view that it was exclusively States, irrespective of their level of social, economic, scientific or technical development, that had an obligation to engage in the regulatory process associated with the use of nuclear power sources in outer space and that the matter concerned all humanity. Those delegations were of the view that Governments bore international responsibility for national activities involving the use of nuclear power sources in outer space conducted by governmental and non-governmental organizations and that such activities must be beneficial, not detrimental, to humanity.

130. Some delegations were of the view that the use of nuclear power sources in outer space should be as limited as possible and that comprehensive and transparent information on measures taken to ensure safety should be provided to other States. Those delegations were of the view that, while nuclear power sources were needed for some interplanetary missions, no justification existed for the use of nuclear power sources in terrestrial orbits, for which other sources of energy were available that were much safer and had been proved to be efficient.

131. The view was expressed that the workshops organized by the Working Group promoted activities related to the use of nuclear power sources in outer space. In that connection, that delegation was of the view that the proliferation of nuclear power sources in outer space, especially in terrestrial orbits, should not be allowed, as the effects of their use in outer space on humankind and the environment had not been assessed and there was no definite framework establishing responsibilities and introducing technical and legal tools that could effectively address critical situations that might arise because of undue practices.

132. The view was expressed that the Safety Framework was not sufficient in its present form to meet the challenges posed by the use of nuclear power sources in outer space.

7. Near-Earth objects

133. The Committee took note of the discussion of the Subcommittee under the agenda item on near-Earth objects, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 151-165 and annex III, paras. 9 and 10).

134. The Committee endorsed the recommendations of the Subcommittee and its Working Group on Near-Earth Objects, which was convened under the chairmanship of Sergio Camacho (Mexico) (A/AC.105/987, para. 165 and annex III).

135. The Committee noted that the International Academy of Astronautics had held its second conference on impacts by asteroids and comets on the Earth, entitled "From threat to action" and co-organized by the Romanian Space Agency, from 9 to 12 May 2011 in Bucharest. The conference, which was a follow-up to the first IAA Planetary Defense Conference, entitled "Protecting Earth from asteroids", held in 2009 in Granada, Spain, addressed the following issues: potentially hazardous objects: recent progress; discovery and tracking resources and plans; impacts, consequences and education; mission planning and technologies; campaign planning; legal, policy and political framework for planetary defence; and moving forward on planetary defence.

136. The view was expressed that progress had been made in expanding the global network for the detection and characterization of near-Earth objects but that more time was needed to consider how international cooperation could be formulated to design potential deflection missions with regard to such objects. That delegation was of the view that international cooperation in further developing detection capabilities and information-sharing networks on near-Earth objects was of utmost importance.

137. The Committee noted that, on the margins of its fifty-fourth session, the Action Team on Near-Earth Objects had held two meetings to continue its work on the draft recommendations for an international response to the near-Earth object impact threat, as referred to in the report of the Subcommittee (A/AC.105/987, annex III, para. 10). The Committee also noted that the Action Team on Near-Earth Objects would organize a meeting in the United States on 25 and 26 August 2011 to discuss draft terms of reference of a mission planning and operations group of space agencies.

8. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union

138. The Committee took note of the discussion of the Subcommittee under the agenda item on the examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 202-209).

139. Some delegations reiterated the view that the geostationary orbit was a limited natural resource at risk of becoming saturated, which threatened the sustainability of outer space activities. Those delegations were of the view that the exploitation of the geostationary orbit should be rationalized and made available to all States, irrespective of their current technical capabilities, thus giving them the opportunity to have access to the geostationary orbit under equitable conditions, taking into account in particular the needs of developing countries and the geographical position of certain countries, with the participation and cooperation of ITU.

140. Some delegations were of the view that the geostationary orbit offered unique potential for the implementation of social programmes, educational projects and medical assistance. Those delegations therefore considered that the item on the geostationary orbit should remain on the agenda of the Subcommittee for further discussion through working groups, intergovernmental panels or task forces, for the purpose of continuing to analyse its scientific and technical characteristics.

9. International Space Weather Initiative

141. The Committee took note of the discussion of the Subcommittee under the agenda item on the International Space Weather Initiative, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 166-177).

142. The Committee noted that the International Space Weather Initiative had significantly contributed to the observation of space weather through the deployment of instrument arrays and the sharing of observed data among researchers around the world.

143. The Committee welcomed the fact that participation in the International Space Weather Initiative was open to scientists from all countries, as instrument hosts or instrument providers. In that regard, the Committee noted that 15 instrument arrays with close to 1,000 instruments were operating in 96 countries, implemented by designated coordinators of the Initiative.

144. The Committee noted that the International Space Weather Initiative offered Member States the opportunity to coordinate the global monitoring of space weather using space- and ground-based assets, assist in consolidating common knowledge and develop essential forecast capabilities to improve the safety of space-based assets.

145. The Committee noted with appreciation that the second workshop on the International Space Weather Initiative would be hosted by Nigeria in Abuja from 17 to 21 October 2011.

10. Long-term sustainability of outer space activities

146. The Committee took note of the discussion of the Subcommittee under the agenda item on the long-term sustainability of outer space activities, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 178-201).

147. The Committee endorsed the recommendations on the item made by the Scientific and Technical Subcommittee and the Working Group on the Long-term Sustainability of Outer Space Activities, reconvened under the chairmanship of Peter Martinez (South Africa) (A/AC.105/987, paras. 189-190 and annex IV, paras. 9-12).

148. The Committee had before it the following:

(a) Working paper submitted by the Chair of the Working Group on the terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee (A/AC.105/C.1/L.307/Rev.1);

(b) Comments received from the Russian Federation on the draft terms of reference of the Working Group on the Long-term Sustainability of Outer Space Activities (A/AC.105/2011/CRP.10);

(c) Comments received from Mexico on the draft terms of reference of the Working Group on the Long-term Sustainability of Outer Space Activities (A/AC.105/2011/CRP.11).

149. The Committee, at its 643rd meeting, adopted the terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer

Space Activities of the Scientific and Technical Subcommittee, contained in annex II to the present report.

150. The Committee recalled its agreement made at its fifty-second session, in 2009, that the Committee would consider whether the set of best practices guidelines should require review by the Legal Subcommittee before endorsement by the Committee and that, once the set of best practices guidelines had been endorsed, the Committee might also consider whether it should be annexed to a specific General Assembly resolution or should be endorsed by the Assembly as part of its annual resolution on international cooperation in the peaceful uses of outer space (A/64/20, para. 162).

151. The Committee noted the agreement by the Working Group, endorsed by the Subcommittee at its forty-eighth session, that expert groups should be established and their chairs or co-chairs should be identified by the end of April 2011, with a view to reporting on the progress made to the Committee at its fifty-fourth session (A/AC.105/987, annex IV, para. 11).

152. The Committee noted with satisfaction the nominations of chairs, co-chairs and experts for the expert groups as at 9 June 2011 (A/AC.105/2011/CRP.15 and Add.1), which would allow the expert groups to commence their work in accordance with the terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer Space Activities, contained in annex II to the present report.

153. The Committee requested the Secretariat to continue to invite member States of the Committee and intergovernmental organizations with permanent observer status with the Committee to nominate points of contact for the Working Group and suitable experts to participate in the expert groups, in order to facilitate further progress in the Working Group's activities.

154. Some delegations expressed concern over the fragility of the space environment and the challenges related to the long-term sustainability of outer space activities, owing in particular to the increasing number of space actors, spacecraft and space debris.

155. Some delegations were of the view that the consideration of the long-term sustainability of outer space activities should not be used as a pretext for States that had been able to develop their space capabilities without controls — resulting in the challenges faced today — to restrict or impose controls on other States wishing to exercise their legitimate right to use the same technology for their national benefit.

156. Some delegations were of the view that outer space, as a limited natural resource, should be protected and used rationally, and that clear regulations, rules and recommendations were needed in order to ensure the sustainability of outer space activities in the long term.

157. Some delegations were of the view that any outcome of the discussion held in the framework of the Working Group should not contain any measures that would limit access to space by States with emerging space capabilities. It was also stressed that setting overly high standards or thresholds for space activities in a way that might hinder the enhancement of capacity-building of developing countries should be avoided. Those delegations were of the view that more capacity-building

activities in the legal and scientific and technical areas were required and that the relevant expertise should be made available to developing countries.

158. The view was expressed that the adoption of the terms of reference and methods of work of the Working Group would enable the Scientific and Technical Subcommittee to conduct a pragmatic analysis of space activities that allowed the Subcommittee to forecast a broad array of trends and factors affecting the long-term sustainability of outer space activities.

159. The view was expressed that the exploration and peaceful uses of outer space should be a cooperative endeavour and that achieving a balance between the Committee's regulatory and promotional roles would contribute to the long-term sustainability of outer space activities.

160. The view was expressed that it was necessary to ensure that space activities were conducted in a sustainable manner and that all countries had equitable access to the limited natural resources of outer space.

161. The view was expressed that the activity of the Working Group should conform to the Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space[5] and give due attention to preventing the placement of weapons in outer space.

162. The view was expressed that it was desirable, under this item of the Subcommittee, to consider the possibility of developing generic guidelines on cooperation in the field of high technology, to develop a common vision regarding standards and best practices in the area of physical and legal protection of the export and import of space technologies, and to exchange views on policies, practices and organizational and technical procedures that would ensure the legitimate use of controlled space-related products.

11. Draft provisional agenda for the forty-ninth session of the Scientific and Technical Subcommittee

163. The Committee took note of the discussion of the Subcommittee on the agenda item on the draft provisional agenda for the forty-ninth session of the Scientific and Technical Subcommittee, as reflected in the report of the Subcommittee (A/AC.105/987, paras. 210-225 and annex I, sect. F).

164. On the basis of the deliberations of the Scientific and Technical Subcommittee at its forty-eighth session, the Committee agreed that the following substantive items should be considered by the Subcommittee at its forty-ninth session:

1. Election of the Chair.
2. General exchange of views and introduction of reports submitted on national activities.
3. United Nations Programme on Space Applications.
4. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).

[5] General Assembly resolution 1962 (XVIII).

5. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.

6. Space debris.

7. Space-system-based disaster management support.

8. Recent developments in global navigation satellite systems.

9. Items to be considered under workplans:

(a) Use of nuclear power sources in outer space;

(Work for 2012 as reflected in the multi-year workplan in paragraphs 8 and 9 of annex II to the report of the Scientific and Technical Subcommittee on its forty-seventh session (A/AC.105/958))

(b) Near-Earth objects;

(Work for 2012 as reflected in the multi-year workplan in paragraph 9 of annex III to the report of the Scientific and Technical Subcommittee on its forty-eighth session (A/AC.105/987))

(c) International Space Weather Initiative;

(Work for 2012 as reflected in the multi-year workplan in paragraph 16 of annex I to the report of the Scientific and Technical Subcommittee on its forty-sixth session (A/AC.105/933))

(d) Long-term sustainability of outer space activities.

(Work for 2012 as reflected in paragraph 23 of annex II to the present report)

10. Single issue/item for discussion: examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.

11. Draft provisional agenda for the fiftieth session of the Scientific and Technical Subcommittee, including identification of subjects to be dealt with as single issues/items for discussion or under multi-year workplans.

165. The Committee endorsed the recommendation that the Working Group of the Whole, the Working Group on the Use of Nuclear Power Sources in Outer Space, the Working Group on Near-Earth Objects and the Working Group on the Long-term Sustainability of Outer Space Activities should be reconvened at the forty-ninth session of the Scientific and Technical Subcommittee.

166. The Committee recalled its agreement reached at its fifty-third session that two hours of each session of the Subcommittee from 2011 to 2013 should be available for holding workshops under the workplan of the Working Group on the Use of Nuclear Power Sources in Outer Space on the item "Use of nuclear power sources in outer space" (A/AC.105/958, annex II, paras. 8 and 10).

167. The Committee welcomed the agreement of the Subcommittee that the topic for the symposium to be organized in 2012 by the Office for Outer Space Affairs, in accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), should be "The Earth observation services industry: market opportunities". The symposium should target the contribution of the Committee to the United Nations Conference on Sustainable Development.

D. Report of the Legal Subcommittee on its fiftieth session

168. The Committee took note with appreciation of the report of the Legal Subcommittee on its fiftieth session (A/AC.105/990), which contained the results of its deliberations on the items considered by the Subcommittee in accordance with General Assembly resolution 65/97.

169. The Committee expressed its appreciation to Ahmad Talebzadeh (Islamic Republic of Iran) for his able leadership during the fiftieth session of the Subcommittee.

170. The representatives of Austria, Belgium, Canada, China, the Czech Republic, France, Germany, Japan, Italy, the United States and Venezuela (Bolivarian Republic of) made statements under the item. Statements relating to the item were also made by the representative of Colombia on behalf of the Group of Latin American and Caribbean States and the representative of Venezuela (Bolivarian Republic of) on behalf of the Group of 77 and China. The observer for Unidroit also made a statement.

1. Status and application of the five United Nations treaties on outer space

171. The Committee took note of the discussion of the Subcommittee under its agenda item on the status and application of the five United Nations treaties on outer space, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 29-43).

172. The Committee endorsed the decisions and recommendations of the Subcommittee and its Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, which had been reconvened under the chairmanship of Jean-François Mayence (Belgium) (A/AC.105/990, paras. 31 and 42 and annex I, paras. 7, 10 and 14).

173. The Committee had before it conference room paper A/AC.105/C.1/2011/CRP.12, containing a corrigendum to the status of international agreements relating to activities in outer space as at 1 January 2011 (ST/SPACE/11/Rev.2/Add.4).

174. Some delegations were of the view that the United Nations treaties on outer space constituted a solid legal structure that was crucial for supporting the increasing scale of space activities and for strengthening international cooperation on the peaceful uses of outer space. Those delegations welcomed further adherence to the treaties and hoped that those States that had not yet ratified or acceded to the treaties would consider becoming parties to them.

175. Some delegations were of the view that the Committee should review, update and modify the five treaties, for the purpose of strengthening the guiding principles of outer space activities, in particular those principles that guarantee its peaceful use, strengthen international cooperation, make space technology available to humanity and strengthen the responsibility of States in space activities carried out by both governmental and non-governmental entities.

176. Some delegations were of the view that the five United Nations treaties, while essential for the peaceful development of space activities, were no longer sufficient for addressing legal issues arising from technological development, the expansion of space activities and the increasing participation of the private sector and that therefore further debate in the Subcommittee was warranted.

177. Some delegations were of the view that the debate on issues such as the transfer of ownership of objects in outer space was important and that those issues should continue to be studied by the Working Group.

178. Some delegations expressed the view that a comprehensive legal instrument of space law could be negotiated and concluded without prejudice to the existing legal framework for space activities.

179. The view was expressed that negotiating a new comprehensive convention on outer space would be counterproductive and could undermine the existing international legal regime governing outer space activities, particularly the principles contained in articles I and II of the Outer Space Treaty.

2. Information on the activities of international intergovernmental and non-governmental organizations relating to space law

180. The Committee took note of the discussion of the Subcommittee under the item on information on the activities of international intergovernmental and non-governmental organizations relating to space law, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 44-53).

181. The Committee noted the important role of international intergovernmental and non-governmental organizations and their contribution to its endeavours to promote the development of space law.

182. The Committee noted the role played by intergovernmental organizations in providing platforms for strengthening the legal framework applicable to space activities and invited those organizations to consider taking steps to encourage their members to adhere to the outer space treaties.

3. Matters relating to the definition and delimitation of outer space and the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union

183. The Committee took note of the discussion of the Subcommittee under the agenda item on matters relating to the definition and delimitation of outer space and the character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 54-73).

184. The Committee endorsed the recommendations of the Subcommittee and its Working Group on the Definition and Delimitation of Outer Space, reconvened under the chairmanship of José Monserrat Filho (Brazil) (A/AC.105/990, para. 57 and annex II, para. 13).

185. Some delegations were of the view that the lack of a definition or delimitation of outer space created legal uncertainty concerning the applicability of space law and air law.

186. Some delegations were of the view that the Subcommittee, in considering matters relating to the definition and delimitation of outer space, should take into account recent and future technological developments, and that the Scientific and Technical Subcommittee should also consider that subject.

187. Some delegations were of the view that the geostationary orbit — a limited natural resource clearly in danger of saturation — must be used rationally and should be made available to all States, irrespective of their current technical capacities. That would provide States with the possibility of having access to the orbit under equitable conditions, bearing in mind, in particular, the needs and interests of developing countries, as well as the geographical position of certain countries, and taking into account the processes of ITU and relevant norms and decisions of the United Nations.

188. Some delegations were of the view that the utilization by States of the geostationary orbit on the basis of "first come, first served" was unacceptable and that therefore the Subcommittee should develop a legal regime guaranteeing equitable access to orbital positions for States, in accordance with the principles of peaceful use and non-appropriation of outer space.

4. Review and possible revision of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space

189. The Committee took note of the discussion of the Subcommittee under the agenda item on the review and possible revision of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space,[6] as reflected in the report of the Subcommittee (A/AC.105/990, paras. 74-89).

190. The Committee endorsed the recommendation of the Subcommittee on this item (A/AC.105/990, para. 88).

191. Some delegations expressed the view that close communication should be maintained among the Scientific and Technical Subcommittee, the Legal Subcommittee and other relevant bodies of the United Nations system, with the aim of promoting the development of binding international standards that address the use of nuclear power sources in outer space.

192. Some delegations expressed the view that more consideration should be given to the use of nuclear power sources in outer space, specifically in the geostationary orbit and low-Earth orbits, in order to address the legal aspects of the problem of potential collisions of nuclear-powered space objects in orbit and the incidents or emergencies that might be created by the accidental re-entry of such objects into the Earth's atmosphere, as well as the impact of such a re-entry on the Earth's surface,

[6] General Assembly resolution 47/68.

human life and health and the ecosystem. Those delegations were of the view that increased attention should be given to those issues through adequate strategies, long-term planning and regulations, including the Safety Framework for Nuclear Power Source Applications in Outer Space.

193. Some delegations were of the view that it was exclusively States, irrespective of their level of social, economic, scientific or technical development, that had an obligation to engage in regulatory activity associated with the use of nuclear power sources in outer space and that the matter concerned all of humanity. Those delegations were also of the view that Governments bore international responsibility for national activities involving the use of nuclear power sources in outer space conducted by governmental and non-governmental organizations and that such activities must be beneficial and not detrimental to humanity. In that context, those delegations called on the Legal Subcommittee to undertake a review of the Safety Framework for Nuclear Power Source Applications in Outer Space and to promote binding standards with a view to ensuring that any activity conducted in outer space was governed by the principles of preservation of life and maintenance of peace.

194. Some delegations were of the view that there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee in order to promote greater understanding, acceptance and implementation of the legal instruments and the development of new legal instruments related to the use of nuclear power sources in outer space.

5. Examination and review of the developments concerning the draft protocol on matters specific to space assets to the Convention on International Interests in Mobile Equipment

195. The Committee took note of the discussion of the Subcommittee under the item on the examination and review of the developments concerning the draft protocol on matters specific to space assets to the Convention on International Interests in Mobile Equipment, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 90-103).

196. The Committee noted with appreciation that the Unidroit Governing Council had held its ninetieth session from 9 to 11 May 2011 in Rome and had authorized the transmission of the preliminary draft protocol for adoption by a diplomatic conference, which is planned to be held in the first quarter of 2012.

6. Capacity-building in space law

197. The Committee took note of the discussion of the Subcommittee under the item on capacity-building in space law, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 104-120).

198. The Committee endorsed the recommendations of the Subcommittee on the agenda item (A/AC.105/990, paras. 117 and 119).

199. The Committee agreed that research, training and education in space law were of paramount importance to national, regional and international efforts to further develop space activities and to increase knowledge of the legal framework within which space activities were carried out.

200. The Committee noted that the exchange of views on national and international efforts to promote a wider appreciation of space law and endeavours such as the annual workshops on space law and the development of the curriculum on space law were playing a vital role in building capacity in that area.

201. Some delegations were of the view that capacity-building in space law, in particular in developing countries, needed to be enhanced through international cooperation. In that connection, greater support by the Office for Outer Space Affairs and Member States was needed to enhance both North-South and South-South cooperation in order to facilitate the sharing of space law knowledge among States.

202. Some delegations were of the view that greater academic links should be established between academic institutions in developing countries and long-term fellowship programmes, universities, United Nations centres of research and other national and international institutions on space law.

7. General exchange of information on national mechanisms relating to space debris mitigation measures

203. The Committee took note of the discussion of the Subcommittee under the item on national mechanisms relating to space debris mitigation measures, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 121-142).

204. The Committee endorsed the recommendation of the Subcommittee on this item (A/AC.105/990, para. 140).

205. The Committee expressed concern over the increasing amount of space debris and noted with satisfaction that the endorsement by the General Assembly, in its resolution 62/217, of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space was a key step in providing all spacefaring nations with guidance on how to mitigate the problem of space debris.

206. Some delegations were of the view that the issue of mitigation of space debris should continue to be treated as a priority, with a view to further increasing research in the areas of technology for space debris observation, space debris environmental modelling and technologies to protect space systems from space debris and to limit substantially the creation of additional space debris.

207. Some delegations were of the view that space debris mitigation efforts should not lead to setting up overly high standards or thresholds for space activities in a way that might hinder the enhancement of capacity-building in developing countries.

208. Some delegations were of the view that technical research should be carried out with a view to improving the Space Debris Mitigation Guidelines of the Committee and keeping them up to date with new technologies and capabilities of detection and reduction of space debris, in accordance with General Assembly resolution 62/217.

209. Some delegations were of the view that the Subcommittee should include on its agenda an item to review the legal aspects of the Space Debris Mitigation Guidelines of the Committee with a view to transforming the Guidelines into a set of principles to be adopted by the General Assembly.

210. The view was expressed that, in order to meet the challenges related to space debris mitigation resulting from the current intensification and diversification of space activities, the Legal Subcommittee should explore the possibility of developing appropriate new rules, including soft laws.

8. General exchange of information on national legislation relevant to the peaceful exploration and use of outer space

211. The Committee took note of the discussion of the Subcommittee under the item on national legislation relevant to the peaceful exploration and use of outer space, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 143-153).

212. The Committee endorsed the recommendations of the Subcommittee and its Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space, reconvened under the chairmanship of Irmgard Marboe (Austria) (A/AC.105/990, para. 145 and annex III, paras. 7-12).

213. The Committee noted with satisfaction that the discussions of the Working Group had enabled States to gain an understanding of existing national regulatory frameworks, share experiences on national practices and exchange information on national legal frameworks, for the benefit of States in the process of enacting legislation on national space activities.

9. Draft provisional agenda for the fifty-first session of the Legal Subcommittee

214. The Committee took note of the discussion of the Subcommittee under the agenda item on the draft provisional agenda for the fifty-first session of the Legal Subcommittee, as reflected in the report of the Subcommittee (A/AC.105/990, paras. 154-175).

215. On the basis of the deliberations of the Legal Subcommittee at its fiftieth session, the Committee agreed that the following substantive items should be considered by the Subcommittee at its fifty-first session:

Regular items

1. Election of the Chair.
2. General exchange of views.
3. Status and application of the five United Nations treaties on outer space.
4. Information on the activities of international intergovernmental and non-governmental organizations relating to space law.
5. Matters relating to:
   (a) The definition and delimitation of outer space;
   (b) The character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union.

Single issues/items for discussion

6. Review and possible revision of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space.

7. Examination and review of the developments concerning the draft protocol on matters specific to space assets to the Convention on International Interests in Mobile Equipment.

8. Capacity-building in space law.

9. General exchange of information on national mechanisms relating to space debris mitigation measures.

Items considered under workplans

10. General exchange of information on national legislation relevant to the peaceful exploration and use of outer space.

    2012: Finalization, by a working group, of a report to the Legal Subcommittee.

New items

11. Proposals to the Committee on the Peaceful Uses of Outer Space for new items to be considered by the Legal Subcommittee at its fifty-second session.

216. The Committee agreed that the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, the Working Group on Matters Relating to the Definition and Delimitation of Outer Space and the Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space should be reconvened at the fifty-first session of the Legal Subcommittee.

217. The Committee also agreed that the Subcommittee should review, at its fifty-first session, the need to extend beyond that session the mandate of the Working Group on the Status and Application of the Five United Nations Treaties on Outer Space.

218. The Committee further agreed that the International Institute of Space Law and the European Centre for Space Law should be invited to organize a symposium on space law at the fifty-first session of the Subcommittee.

E. Spin-off benefits of space technology: review of current status

219. The Committee considered the agenda item entitled "Spin-off benefits of space technology: review of current status", in accordance with General Assembly resolution 65/97.

220. The representatives of Germany, India, Japan, the Russian Federation and the United States made statements under the item.

221. The Committee heard the following presentation: "Chilean Space Agency: activities and international cooperation 2010-2011", by the representative of Chile.

222. The publication *Spinoff 2010*, submitted by the National Aeronautics and Space Administration of the United States, was made available to the Committee.

223. The Committee took note of the information provided by States on their national practices regarding spin-offs of space technology that had resulted in the introduction of strategies for the management of regional economic development, as well as useful innovations in numerous scientific and practical areas of civil society, such as medicine, biology, chemistry, astronomy, agriculture, aviation, land transport, firefighting, the protection of nature and energy.

224. The Committee also took note of the projects being implemented on board the International Space Station aimed at the development of various practical applications for civil society, such as medications to treat AIDS and hepatitis, semiconductors and products for agriculture.

225. The Committee agreed that spin-offs of space technology constituted a powerful engine for technological innovation and growth in both the industrial and service sectors and that they could be beneficially applied to achieve social and humanitarian objectives and the development of national communications infrastructure, and be applied in projects aimed at achieving the goal of sustainable development.

226. The Committee agreed that spin-offs of space technology should be promoted because they fostered innovative technologies, thus advancing economies and contributing to the improvement of the quality of life.

227. The Committee noted that Governments had successfully involved the private sector and academia in various projects in the area of spin-offs of space technology.

F. Space and society

228. The Committee considered the agenda item entitled "Space and society", in accordance with General Assembly resolution 65/97. The Committee focused its discussions on the theme "Space and education", in particular on the issue of promoting the greater participation of young people in space science and technology.

229. The representatives of India, Japan, Malaysia, Nigeria, South Africa, the United States and Venezuela (Bolivarian Republic of) made statements under the item. During the general exchange of views, statements relating to that item were also made by representatives of other member States.

230. The Committee heard the following presentations:

(a) "Space and education", by the representative of the United States;

(b) "Space Biology Group: research and space support centre", by the representative of Switzerland;

(c) "Space weather and space debris awareness in Indonesia", by the representative of Indonesia;

(d) "Bridging space and the society: recent educational activities in Japan", by the representative of Japan;

(e) "The Australian Space Research Program", by the representative of Australia;

(f) "Google Lunar X Prize: an opportunity for the participation of Chile in space exploration", by the representative of Chile.

231. The Committee noted the information provided by States on their actions and programmes aimed at attracting young people to the field of space by making them aware of the importance of space science, technology and applications and at inspiring future generations to pursue careers in science, technology, engineering and mathematics.

232. The Committee noted with satisfaction that a large number of outreach activities and space curricula and programmes for children, young people and the general public were being established by national space and educational organizations and international organizations to promote awareness of the benefits of space science and technology and applications for achieving socio-economic and sustainable development.

233. The Committee noted that international cooperation in the area of educational programmes on space science and technology was crucial in order to leverage resources and ensure that space-related educational programmes remained relevant to youth worldwide.

234. The Committee noted the role that the International Space Station continued to play in education and in reaching out to education communities worldwide.

235. The Committee noted the activities carried out at the regional level for capacity-building through education and training in space science and technology applications for sustainable development. The Committee noted with appreciation the role of regional centres for space science and technology education, affiliated to the United Nations, in space-related education.

236. The Committee noted that a number of global space-related celebrations, in particular World Space Week, observed from 4 to 10 October each year pursuant to General Assembly resolution 54/68, continued to raise awareness about outer space among young people and the general public and offered a number of educational tools that enabled younger generations to play an active role in the areas of space science and technology.

237. The Committee noted a number of space-related conferences, competitions, exhibitions, symposiums and seminars, at the global level, connecting educators and students and providing them with training and educational opportunities.

238. The Committee recalled the beneficial uses of space applications for society and their increasing use by developing countries in areas such as telemedicine and through the use of distance-learning technologies such as tele-education and e-learning that served as tools to achieve development goals.

G. Space and water

239. The Committee considered the agenda item entitled "Space and water", in accordance with General Assembly resolution 65/97.

240. The representatives of Austria, Germany, India, Indonesia, Japan, Nigeria and Poland made statements under the item. During the general exchange of views, statements relating to that item were also made by other member States and by the representative of Colombia on behalf of the Group of Latin American and Caribbean States. The observer for IAF also made a statement under this item.

241. The Committee heard the following presentations:

(a) "Monitoring of 2010 floods in Pakistan using space-based assets", by the representative of Pakistan;

(b) "Space and water: benefiting agriculture in India", by the representative of India;

(c) Invitation for nominations for the fifth award of the Prince Sultan bin Abdulaziz International Prize for Water, by the observer for the Prize.

242. In the course of the discussions, delegations reviewed national and cooperative water-related activities, giving examples of national programmes and bilateral, regional and international cooperation.

243. The Committee noted with satisfaction that the General Assembly, in its resolution 58/217, had proclaimed the period 2005-2015 as the International Decade for Action, "Water for Life", which reflected the growing awareness of and concern for water-related issues. It was also noted that conservation and proper utilization of water resources were of paramount importance for sustaining life on Earth. In that connection, space-derived data could enhance the various links that existed between the state of natural resources and livelihood opportunities.

244. The Committee noted that space-derived data were used extensively in water management and that space technology and applications, combined with non-space technologies, played an important role in addressing most water-related issues, including the understanding and observation of global water cycles and the monitoring and mitigation of the effects of flood, drought and earthquake disasters, as well as in improving the timeliness and accuracy of forecasts.

245. The Committee noted the large number of space-borne platforms that addressed water-related issues, including those that provided input for the planning and theoretical stages. Data gathered by such platforms had great potential for expanding the use of applications of space technology to address water-related issues on Earth.

246. The Committee also noted the success of the second United Nations International Conference on the Use of Space Technology for Water Management, held in Buenos Aires from 14 to 18 March 2011, which was jointly organized by the United Nations Programme on Space Applications, ESA and the Prince Sultan bin Abdulaziz International Prize for Water and hosted by the Government of Argentina. It was noted that the next conference in that series was planned for 2013.

247. The Committee agreed to include the special theme of "space and ecosystem management" for consideration under this item at its fifty-fifth session, in 2012, in order to embark on deliberations on the positive impact of cooperation between providers of space-related technologies, services and data and those governmental, intergovernmental and non-governmental institutions responsible for the protection and sustainable use of marine and coastal ecosystems.

II. Space and climate change

248. In accordance with paragraph 51 of General Assembly resolution 63/90, the Committee addressed this issue under the item entitled "Space and climate change".

249. The representatives of Brazil, Colombia, Germany, India, Indonesia, Japan, Portugal, the Republic of Korea, Saudi Arabia, the United States and South Africa made statements under this item. During the general exchange of views, statements relating to the item were also made by representatives of other member States and by the representative of Colombia on behalf of the Group of Latin American and Caribbean States.

250. The Committee heard the following presentations:

(a) "Global space system of the seismic activity monitoring", by the representative of Ukraine;

(b) "Contribution to monitoring climate change through JAXA's Earth observation missions", by the representative of Japan;

(c) "The climate regional readiness review (Climate R3)", by the representative of Australia.

251. The Committee noted that the adverse effects of climate change affected all regions of the world and were manifested through a variety of processes such as global warming, reduction in the summertime sea ice coverage, reduction in the ice mass of the Greenland ice sheet and in the ice mass in glaciers, sea-level rise, changes in large-scale current systems in oceans, more intense or extreme weather events such as storms, tropical cyclones and droughts.

252. The Committee also noted that, given the global nature of climate change, global observations were ideal for monitoring it more precisely. In that context, the Committee noted that space-based observations, complemented by ground-based observations, were well suited to monitoring the different manifestations of climate change and factors which were contributing to it.

253. The Committee took note of cooperative efforts between space agencies of several countries to launch satellites to monitor the impact of climate change and climate change-related parameters and to share data gathered from several satellites to advance the understanding of the impact of climate change.

254. The Committee noted efforts conducted by various countries regarding the deployment of satellites carrying a variety of instruments to monitor greenhouse gases and aerosols; to track deforestation, land degradation and subsequent changes in forest biomass; and to monitor atmospheric processes such as precipitation, clouds and global water circulation changes.

255. Some delegations were of the view that, given the global nature of climate change, international cooperation in space-based observations of oceans, the atmosphere, land and solar-terrestrial interactions had a fundamental contribution in addressing the challenges posed by climate change.

256. Some delegations were of the view that climate change posed a threat to human security through its impacts on agriculture, which led to food insecurity, the contamination of coastal freshwater reserves, impacts on nurseries and spawning

grounds of fish species, and the alteration of the extent and state of natural resources.

257. Some delegations described their efforts to support climate change-related activities conducted by the Group on Earth Observations, CEOS, the Global Earth Observation System of Systems and the Global Climate Observing System.

258. Some delegations were of the view that the Committee should play a more proactive role in advocating international cooperation regarding the deployment and use of satellites to track the effects of climate change and its impacts through disasters.

259. The view was expressed that the use of space-based information had enabled Governments to refine environmental management policies and supported the enforcement of legislation targeting illegal deforestation, poaching activities and illegal harvesting of endangered fish species.

I. Use of space technology in the United Nations system

260. The Committee continued its consideration of the agenda item entitled "Use of space technology in the United Nations system", in accordance with General Assembly resolution 65/97.

261. The representatives of Chile, Germany and Switzerland made statements under the item. During the general exchange of views, statements relating to that item were also made by representatives of other member States.

262. The Director of the Office for Outer Space Affairs made a statement on behalf of the Office of the United Nations High Commissioner for Refugees, which chaired the thirty-first session of the Inter-Agency Meeting on Outer Space Activities, held in Geneva from 16 to 18 March 2011, to inform the Committee about the outcomes of that meeting.

263. The Committee had before it the report of the Inter-Agency Meeting on Outer Space Activities on its thirty-first session (A/AC.105/992) and recalled that at its thirty-second session, in 2012, the Meeting would consider a report of the Secretary-General on the coordination of space-related activities within the United Nations system and directions and anticipated results for the period 2012-2013.

264. The Committee welcomed with appreciation the special report of the Inter-Agency Meeting on Outer Space Activities on the use of space technology within the United Nations system to address climate change issues (A/AC.105/991), prepared under the leadership of the World Meteorological Organization and the Office for Outer Space Affairs, with contributions from United Nations entities.

265. The view was expressed that the special report could have benefited from reflecting the wider use of satellites in early warning efforts; expanding the information on the role of several United Nations entities, including the United Nations Environment Programme; and elaborating on the use of space technology not only to monitor climate change and its impact but also to promote and address the effects of mitigation and adaptation measures.

266. The Committee noted that a joint session of the Inter-Agency Meeting and the United Nations Geographical Information Working Group, held on 16 March 2011, resulted in the establishment of a special task group with the objective of providing a substantive contribution to the United Nations Conference on Sustainable Development, to be held in Rio de Janeiro, Brazil, in 2012, reflecting the views of a wider group of United Nations entities on the increasing role that the use of space-derived geospatial data had in achieving sustainable development.

267. The Committee noted that the eighth open informal session for States members and observers of the Committee, on the theme "Space and climate change", had been held immediately following the thirty-first session of the Inter-Agency Meeting, on 18 March 2011. The Committee agreed that those open informal sessions provided an opportunity to increase awareness and share views on topics related to the use of space technology in the United Nations system and encouraged member States to more actively participate in those informal sessions.

268. The Committee noted that the Office for Outer Space Affairs, in its function as the secretariat of the Inter-Agency Meeting, was coordinating with the World Food Programme for the hosting of the thirty-second session of the Inter-Agency Meeting, to be held in Rome in March 2012.

269. The Committee noted with satisfaction that the Secretariat continued to maintain a website on the coordination of outer space activities within the United Nations system (www.uncosa.unvienna.org). The presentations made at the thirty-first session of the Inter-Agency Meeting and the subsequent open informal session, as well as other information on the current space-related activities of United Nations entities, were available on that website.

J. Future role of the Committee

270. In accordance with paragraph 2 of General Assembly resolution 65/97, the Committee considered a new item entitled "Future role of the Committee".

271. The Committee recalled that in paragraph 28 of that resolution, the Assembly had noted with satisfaction that the working paper by the Chair of the Committee for the period 2008-2009, entitled "Towards a United Nations space policy", would be considered by the Committee at its fifty-fourth session.

272. The Committee recalled the agreement reached at its fifty-third session to include a new item entitled "Future role of the Committee" on the agenda for its fifty-fourth session, for one year only, to enable the Committee to consider that working paper further.

273. The Chair of the Committee for the period 2008-2009, the second Vice-Chair of the Committee for the period 2010-2011 and the representatives of Brazil, China, the Czech Republic and Mexico made statements under the item.

274. The Chair of the Committee for the period 2008-2009, Ciro Arévalo Yepes (Colombia), outlined that the working paper (A/AC.105/L.278) represented (a) a conceptual framework document that could address concerns related to space affairs, in particular for countries with emerging space capabilities; (b) a forward-looking platform projecting future space-related activities not only

within the Committee but also at the national, regional and interregional levels; and (c) an evolving document that would be enriched over the course of space activities and that could be revisited by the Committee in the future.

275. The view was expressed that it would be beneficial to enhance systematization of the document and consider expanding the document to include elements related to sustainable development.

276. The view was expressed that the work on the document could continue in the framework of the Working Group on the Long-term Sustainability of Outer Space Activities.

277. The view was expressed that with regard to the future role of the Committee, the work of the Committee should follow a pluralistic approach and allow the discussion of items of interest to its member States.

278. The view was expressed that the Committee should enhance its activities in the area of space law in order to adapt to developing trends in space activities, and expand its work in the area of improving space capabilities of developing countries and introducing innovative working methodologies.

279. The Committee agreed to continue its consideration of the item at its fifty-fifth session, in 2012, for one year only, and to consider submissions under the item, including a proposed update of the working paper (A/AC.105/L.278) by the Chair of the Committee for the period 2008-2009.

K. Other matters

280. The Committee considered the agenda item entitled "Other matters", in accordance with General Assembly resolution 65/97.

281. The representatives of China, the Czech Republic, Nigeria, Saudi Arabia, Switzerland, the United States and Venezuela (Bolivarian Republic of) made statements under the item. During the general exchange of views, statements relating to that item were also made by representatives of other member States, the representative of Colombia on behalf of the Group of Latin American and Caribbean States, the representative of the Islamic Republic of Iran on behalf of the Group of 77 and China and the representative of Hungary on behalf of the European Union. The observer for Azerbaijan made a statement. A statement was also made by the representative of Saudi Arabia on behalf of the Association of Remote Sensing Centres in the Arab World.

1. Composition of the bureaux of the Committee and its subsidiary bodies for the periods 2012-2013 and 2014-2015

282. In accordance with General Assembly resolution 65/97 and pursuant to the measures relating to the working methods of the Committee and its subsidiary bodies[7] as endorsed by the General Assembly in its resolution 52/56, the Committee

[7] *Official Records of the General Assembly, Fifty-second Session, Supplement No. 20* (A/52/20), annex I; see also *Official Records of the General Assembly, Fifty-eighth Session, Supplement No. 20* (A/58/20), annex II, appendix III.

considered the composition of the bureaux of the Committee and its subsidiary bodies for the period 2012-2013.

283. The Committee recalled the nominations for the offices of Chair of the Committee, First Vice-Chair of the Committee and Chair of the Scientific and Technical Subcommittee made at its fifty-third session, in 2010, as noted in its report on that session.[8]

284. The Committee noted that the Eastern European States had endorsed the candidature of Piotr Wolanski (Poland) for the office of Second Vice-Chair/Rapporteur of the Committee for the period 2012-2013 (A/AC.105/2011/CRP.3).

285. The Committee noted that the African States had endorsed the candidature of Tare Brisibe (Nigeria) for the office of Chair of the Legal Subcommittee for the period 2012-2013 (A/AC.105/2011/CRP.5).

286. The Committee agreed that for the period 2012-2013 Yasushi Horikawa (Japan), Filipe Duarte Santos (Portugal) and Piotr Wolanski (Poland) should be elected to the offices of Chair, First Vice-Chair and Second Vice-Chair/Rapporteur of the Committee, respectively; that Félix Clementino Menicocci (Argentina) should be elected to the office of Chair of the Scientific and Technical Subcommittee; and that Tare Brisibe (Nigeria) should be elected to the office of Chair of the Legal Subcommittee.

287. The Committee also noted that the Eastern European States had endorsed the candidature of Elöd Both (Hungary) for the office of Chair of the Scientific and Technical Subcommittee for the period 2014-2015 (A/AC.105/2011/CRP.4).

2. Membership of the Committee

288. The Committee welcomed the application of Azerbaijan for membership of the Committee (see A/AC.105/2011/CRP.7).

289. The Committee advised the Government of Azerbaijan to consider the possibility of acceding to the five United Nations treaties on outer space or at least some of them.

290. The Committee decided to recommend to the General Assembly at its sixty-sixth session, in 2011, that Azerbaijan should become a member of the Committee.

3. Observer status

291. The Committee welcomed the additional information provided by the Association of Remote Sensing Centres in the Arab World in accordance with the request made by the Committee at its fifty-third session, in 2010.[9] The application of the Association is contained in conference room papers A/AC.105/2010/CRP.5, A/AC.105/2011/CRP.6, A/AC.105/C.1/2011/CRP.18 and Add.1, and A/AC.105/C.2/2011/CRP.11.

[8] Ibid., *Sixty-fifth Session, Supplement No. 20* (A/65/20), paras. 301-303.

[9] Ibid., para. 310.

292. The Committee decided to recommend that the General Assembly, at its sixty-sixth session, grant to the Association of Remote Sensing Centres in the Arab World the status of permanent observer of the Committee.

293. In accordance with the agreement of the Committee at its fifty-third session, in 2011, the Secretariat had prepared, on the basis of its contact with the Committee on Non-Governmental Organizations of the Economic and Social Council and the information obtained from the web page of the Non-Governmental Organizations Branch of the Department of Economic and Social Affairs of the Secretariat, a conference room paper (A/AC.105/2011/CRP.8) containing information on the process established for non-governmental organizations to obtain consultative status with the Economic and Social Council. The Committee urged non-governmental organizations having permanent observer status with the Committee that had not yet initiated the application process for consultative status with the Council to do so in the nearest future.

294. The Committee reiterated its agreement reached at its fifty-third session, in 2010,[10] that observer status would be granted to non-governmental organizations on a provisional basis, for a period of three years, pending information on the status of their application for consultative status with the Economic and Social Council, that the provisional observer status with the Committee could be extended for an additional year if necessary and that it would grant permanent observer status to such non-governmental organizations upon confirmation of their consultative status with the Council.

4. Organizational matters

295. The Committee recalled that at its fifty-second session, in 2009, it had requested the Secretariat, in consultation with the members of its bureau and the bureaux of its subsidiary bodies, to consider how to rationalize and optimize the use of the time of the Committee and its subsidiary bodies, taking into account the need to strike a balance between technical presentations, which brought great value, and the substantive consideration of the issues before the Committee and its subsidiary bodies, which required adequate time.

296. The Committee endorsed the recommendations made by the Scientific and Technical Subcommittee in paragraphs 216-220 in its report on its forty-eighth session[11] and those made by the Legal Subcommittee in paragraphs 194 and 196-198 of its report on its fiftieth session,[12] concerning the improvement and optimization of methods of work of those subsidiary bodies.

297. In accordance with the request made by the Committee at its fifty-third session, in 2010, the Committee considered a proposal made by the Secretariat to discontinue the use of unedited transcripts (A/AC.105/C.2/L.282) and agreed that the use of unedited transcripts should be discontinued, starting from its fifty-fifth session, in 2012, in accordance with that proposal.

[10] Ibid., para. 311.
[11] A/AC.105/987.
[12] A/AC.105/990.

298. The Committee agreed to apply to the organization of its work the same methods as proposed by the Scientific and Technical and Legal Subcommittees. In that regard, the Committee agreed that:

(a) Maximum flexibility should be applied in the scheduling of items;

(b) As a general rule, statements should not exceed 10 minutes, and scientific and technical presentations should be closely linked to the agenda items of the Committee and should not exceed 15 minutes in duration. The Chair should remind delegations in case of time being exceeded, as appropriate;

(c) Member States and observers of the Committee should communicate to the Secretariat their wish to make scientific and technical presentations, and under which item the presentation is to be made, before the start of the session, in order to optimize the plan of work of the session. A list of presentations should be made available to all delegations on the first day of the session, for possible updating, and should be closed by the adjournment of the last plenary meeting of that day. Speaking notes for such presentations should be provided to facilitate simultaneous interpretation.

299. The Committee agreed to extend the provisions contained in paragraph 325 of the report on its fifty-third session to the Group of 77 and China and other interregional groups.

300. Some delegations were of the view that the sessions of the Legal Subcommittee should be shortened and that the savings in time could be allocated to the sessions of the Committee or the Scientific and Technical Subcommittee, in particular to the meetings of the Scientific and Technical Subcommittee's Working Group on the Long-term Sustainability of Outer Space Activities. Those delegations underlined the unnecessary financial burden to member States due to the low rate of use of available time.

301. Some delegations were of the view that the Legal Subcommittee was the only international forum in which developing countries could engage in a discussion of the legal aspects of outer space activities. Those delegations emphasized that the rationalization and optimization of the time allocated to the Subcommittee should be achieved by including on the agenda substantive items for discussion with the aim of strengthening the international legal framework and that the current duration of the sessions of the Subcommittee should be maintained so that the legal aspects of outer space activities could continue to be considered.

5. Panel discussion during the sixty-sixth session of the General Assembly

302. The Committee recalled that the General Assembly, in paragraph 42 of its resolution 65/97, had noted with satisfaction that a panel discussion on space and emergencies had been held at United Nations Headquarters on 12 October 2010, and had agreed that a panel discussion should be held, at the sixty-sixth session of the Assembly, on a topic to be selected by the Committee, taking into account the panel discussions held on climate change, food security, global health and emergencies.

303. The Committee agreed that the panel discussion to be held in the Fourth Committee of the General Assembly during its sixty-sixth session, when it considers the item "International cooperation in the peaceful uses of outer space", should be on the topic of the contribution of the Committee on the Peaceful Uses of Outer

Space to the United Nations Conference on Sustainable Development (A/AC.105/2011/CRP.9), which was to be finalized in accordance with paragraph 62 above, and take into account the importance of the topics addressed in the previous panel discussions.

6. Draft provisional agenda for the fifty-fifth session of the Committee

304. The Committee recommended that the following substantive items be considered at its fifty-fifth session, in 2012:

1. Election of officers.
2. General exchange of views.
3. Ways and means of maintaining outer space for peaceful purposes.
4. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).
5. Report of the Scientific and Technical Subcommittee on its forty-ninth session.
6. Report of the Legal Subcommittee on its fifty-first session.
7. Spin-off benefits of space technology: review of current status.
8. Space and society.
9. Space and water.
10. Space and climate change.
11. Use of space technology in the United Nations system.
12. Future role of the Committee.
13. Other matters.

305. The Committee agreed on the importance of commemorating the fortieth anniversary of Landsat — the first Earth-observation satellite mission, providing many countries with remote sensing data since 1972 — and decided to hold a special panel discussion during its fifty-fifth session, in 2012, allocating at least two hours to the panel discussions dedicated to that anniversary and the worldwide evolution of remote sensing, with full interpretation, and to organize a dedicated exhibition on the theme, with the assistance of the Secretariat in preparing for those two commemorative events. A planning meeting for interested delegations should be held on the margins of the forty-ninth session of the Scientific and Technical Subcommittee.

306. The Committee agreed that the Declaration on the Fiftieth Anniversary of Human Space Flight and the Fiftieth Anniversary of the Committee on the Peaceful Uses of Outer Space, contained in annex I to the present report, should be annexed to the draft resolution entitled "International cooperation in the peaceful uses of outer space", to be considered by the Fourth Committee of the General Assembly in 2011.

L. Schedule of work of the Committee and its subsidiary bodies

307. The Committee agreed on the following tentative timetable for its session and those of its subcommittees in 2012:

	Date	*Location*
Scientific and Technical Subcommittee	6-17 February 2012	Vienna
Legal Subcommittee	19-30 March 2012	Vienna
Committee on the Peaceful Uses of Outer Space	6-15 June 2012	Vienna

Annex I

Commemorative segment of the fifty-fourth session of the Committee on the Peaceful Uses of Outer Space on the occasion of the fiftieth anniversary of human space flight and the fiftieth anniversary of the Committee on the Peaceful Uses of Outer Space, held on 1 June 2011

1. Pursuant to General Assembly resolution 65/97 and the agreement reached by the Committee on the Peaceful Uses of Outer Space at its fifty-third session, in 2010, the Committee, at its fifty-fourth session, held a commemorative segment on 1 June 2011, open to all States Members of the United Nations, to mark the fiftieth anniversary of human space flight and the fiftieth anniversary of the Committee. The commemorative segment was chaired by Dumitru-Dorin Prunariu (Romania), Chair of the Committee.

2. Representatives of the following 80 Member States attended the commemorative segment: Afghanistan, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cuba, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, France, Germany, Ghana, Greece, Guatemala, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Lebanon, Malaysia, Mexico, Mongolia, Morocco, Nigeria, Oman, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saudi Arabia, Senegal, Slovakia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syrian Arab Republic, Thailand, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela (Bolivarian Republic of), Viet Nam and Yemen.

3. The commemorative segment was also attended by observers for the European Union, the Holy See and Palestine.

4. Observers for the International Atomic Energy Agency and the International Telecommunication Union also attended the commemorative segment.

5. The commemorative segment was attended by observers for the following intergovernmental organizations: Asia-Pacific Space Cooperation Organization, European Organisation for Astronomical Research in the Southern Hemisphere, European Space Agency (ESA), European Telecommunications Satellite Organization, International Institute for the Unification of Private Law (Unidroit), International Mobile Satellite Organization, International Telecommunications Satellite Organization and Regional Centre for Remote Sensing of North African States.

6. The commemorative segment was also attended by observers for the following non-governmental organizations: Association of Space Explorers, European Space Policy Institute, International Academy of Astronautics, International Astronautical Federation, International Astronomical Union, International Institute of Space Law, International Space University, International Society for Photogrammetry and

Remote Sensing, Prince Sultan bin Abdulaziz International Prize for Water, Secure World Foundation, Space Generation Advisory Council and World Space Week Association.

7. The commemorative segment enjoyed the participation of representatives at the ministerial level, heads of space agencies, astronauts and cosmonauts, and other dignitaries who cited the achievements of the Committee over the course of 50 years, the 50 years of human presence in outer space and the future of humankind in outer space. The historical role played by the first manned space flight conducted on 12 April 1961 by Yuri Gagarin was also noted.

8. The programme of the commemorative segment included opening addresses, the adoption of a declaration, a round-table discussion, addresses by representatives of Member States and the inauguration of an international exhibition on human space flight.

9. Opening addresses were delivered by Ban Ki-moon, Secretary-General of the United Nations, through a video message, Yury Fedotov, Director-General of the United Nations Office at Vienna, and Dumitru-Dorin Prunariu, Chair of the Committee on the Peaceful Uses of Outer Space. The commemorative segment was also addressed by the crew of the International Space Station, through a video message.

10. The Secretary-General, in his video message, recalled the remarkable 50 years of human space flight, which began on 12 April 1961, when Yuri Gagarin became the first human to orbit the Earth. He noted that 2011 was the fiftieth anniversary of the first meeting of the permanent Committee on the Peaceful Uses of Outer Space, held on 27 November 1961, and that the Committee had ever since worked to ensure that outer space was used for peaceful purposes. He also emphasized the importance of space technology applications in the work of United Nations entities.

11. The Director-General of the United Nations Office at Vienna, recalling the amazing achievement of the first human space flight, commended the Committee for the pivotal role it had played over the past five decades in enhancing international cooperation for the benefit of all countries, and the Office for Outer Space Affairs of the Secretariat for assisting countries, in particular developing countries, in the development of capacities for using space science and technology and their applications for peaceful purposes.

12. The Chair of the Committee emphasized the instrumental role that the Committee had played in the development of the international legal regime governing outer space activities, the broad area of focus of the Committee and the alignment of its activities with the Millennium Development Goals. Being a cosmonaut himself, he stressed the need to look more closely into how advanced space research, exploration systems, technologies and scientific research relating to human space flight could benefit all countries. He also recalled the tremendous contribution of all those who had travelled to outer space to the development of space science and technology and their applications.

13. The crew of the International Space Station, in their video message, paid tribute to Yuri Gagarin, the first envoy of humankind to outer space, and to all those who had followed him, and recalled the major achievements of the Committee in the

history of space activities and the exploration and use of outer space for peaceful purposes.

14. The States participating in the commemorative segment adopted by acclamation the Declaration on the Fiftieth Anniversary of Human Space Flight and the Fiftieth Anniversary of the Committee on the Peaceful Uses of Outer Space, which is contained in the appendix to the present annex.

15. The round table on space exploration and the future of humankind in space was moderated by the Chair of the Committee and comprised the following speakers: Juan Acuña Arenas, Head of the Chilean Space Agency; Refaat Chaabouni, Minister of Higher Education and Scientific Research of Tunisia; Jean-Jacques Dordain, Director-General of ESA; Yoshifumi Inatani of the Japan Aerospace Exploration Agency and lead scientist of the re-entry capsule of Hayabusa; Alexey A. Leonov, cosmonaut of the Russian Federation and the first human to perform a spacewalk; Leland Melvin, Associate Administrator for Education of the National Aeronautics and Space Administration and astronaut, United States; and Liwei Yang, the first astronaut of China to orbit the Earth.

16. The round table emphasized the role of space science and technology and their applications in addressing global challenges such as climate change, health and disaster management; further development and challenges in human space flight programmes and the prospects of space exploration in the future; the importance of education and outreach programmes in the area of space activities; the prospects for the development of space science and technology in developing countries; and the need for regional and interregional cooperation in space activities.

17. In the commemorative segment, statements were made by representatives of the following Member States: Austria, Belgium, China, Ecuador, France, Germany, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Kazakhstan, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Philippines, Poland, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Switzerland, Thailand, Tunisia, Turkey, Ukraine and United States. The representative of Hungary made a statement on behalf of the States Members of the United Nations that are members of the European Union. The observer for the Holy See also made a statement.

18. The States participating in the commemorative segment noted the two historic fiftieth anniversaries and welcomed the opportunity they presented to increase awareness of the relevance and importance of space applications for the betterment of the conditions of human life.

19. The States participating in the commemorative segment noted the desirability of a continued collective approach to advancing international cooperation in the peaceful uses of outer space and the importance of further strengthening the role of the Committee in shaping international standards for space activities in many areas for the benefit of all countries, and in ensuring the long-term sustainability of space activities.

20. The States participating in the commemorative segment underscored the role of space science and technology and their applications in meeting challenges to global development, the fostering of regional and interregional cooperation in space activities for sustainable development and the need for enhanced capacity-building in the use of space science and technology for the benefit of all countries.

21. The commemorative segment concluded with the official opening of the international exhibition on the 50 years of human space flight, held in the Vienna International Centre during the month of June 2011. Opening statements were made by the Director-General of the United Nations Office at Vienna, the Chair of the Committee on the Peaceful Uses of Outer Space and Mazlan Othman, Director of the Office for Outer Space Affairs. The exhibition, organized by the Office for Outer Space Affairs with the generous support of member States and permanent observers, comprised contributions from 21 States, ESA and International Space Station partners. Exhibitors included Algeria, Austria, Belgium, Canada, China, France, Germany, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Malaysia, Romania, the Russian Federation, Saudi Arabia, Switzerland, Turkey, the United Kingdom, the United States, Venezuela (Bolivarian Republic of), ESA and the Office for Outer Space Affairs.

22. The States participating in the commemorative segment expressed their appreciation to the Office for Outer Space Affairs for the successful preparations for the commemorative segment and a number of related side events.

Appendix

Declaration on the Fiftieth Anniversary of Human Space Flight and the Fiftieth Anniversary of the Committee on the Peaceful Uses of Outer Space

We, the States participating in the commemorative segment of the fifty-fourth session of the Committee on the Peaceful Uses of Outer Space, held at Vienna on 1 June 2011, in commemorating the fiftieth anniversary of human space flight and the fiftieth anniversary of the Committee on the Peaceful Uses of Outer Space,

1. *Recall* the launch into outer space of the first human-made Earth satellite, Sputnik 1, on 4 October 1957, thus opening the way for space exploration;

2. *Also recall* that on 12 April 1961, Yuri Gagarin became the first human to orbit the Earth, opening a new chapter of human endeavour in outer space;

3. *Further recall* the amazing history of human presence in outer space and the remarkable achievements since the first human spaceflight, in particular Valentina Tereshkova becoming the first woman to orbit the Earth on 16 June 1963, Neil Armstrong becoming the first human to set foot upon the surface of the Moon on 20 July 1969, and the docking of the Apollo and Soyuz spacecrafts on 17 July 1975, being the first international human mission in space, and recall that for the past decade humanity has maintained a multinational permanent human presence in outer space aboard the International Space Station;

4. *Respectfully recall* that the human exploration of outer space has not been without sacrifice, and remember the men and women who have lost their lives in the pursuit of expanding humanity's frontiers;

5. *Emphasize* the significant progress in the development of space science and technology and their applications that has enabled humans to explore the universe, and the extraordinary achievements made over the past fifty years in space exploration efforts, including deepening the understanding of the planetary system and the Sun and the Earth itself, in the use of space science and technology for the benefit of all humankind and in the development of the international legal regime governing space activities;

6. *Recall* the entry into force of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty) on 10 October 1967,[a] which establishes the fundamental principles of international space law;

7. *Also recall* the first meeting of the permanent Committee on the Peaceful Uses of Outer Space, convened on 27 November 1961, which facilitated the adoption of General Assembly resolutions 1721 A to E (XVI) of 20 December 1961, including resolution 1721 A, in which the first legal principles were commended to States for their guidance in space activities, and resolution 1721 B, in which the Assembly expressed its belief that the United Nations should provide a focal point for international cooperation in the peaceful exploration and use of outer space;

[a] United Nations, *Treaty Series*, vol. 610, No. 8843.

8. *Recognize* that the Committee on the Peaceful Uses of Outer Space, assisted by the Office for Outer Space Affairs of the Secretariat, has for the past fifty years served as a unique platform at the global level for international cooperation in space activities and that the Committee and its subsidiary bodies stand at the forefront in bringing the world together in using space science and technology to preserve the Earth and the space environment and ensure the future of human civilization;

9. *Acknowledge* that significant changes have occurred in the structure and content of the space endeavour, as reflected in the emergence of new technologies and the increasing number of actors at all levels, and therefore note with satisfaction the progress made in strengthening international cooperation in the peaceful uses of outer space by enhancing the capacity of States for economic, social and cultural development and by strengthening the regulatory frameworks and mechanisms to that effect;

10. *Reaffirm* the importance of international cooperation in developing the rule of law, including the relevant norms of space law, and of the widest possible adherence to the international treaties that promote the peaceful uses of outer space;

11. *Express our firm conviction* that space science and technology and their applications, such as satellite communications, Earth observation systems and satellite navigation technologies, provide indispensable tools for viable long-term solutions for sustainable development and can contribute more effectively to efforts to promote the development of all countries and regions of the world, to improve people's lives, to conserve natural resources in a world with a growing population that places an increasing strain on all ecosystems, and to enhance the preparedness for and mitigation of the consequences of disasters;

12. *Express our deep concern* about the fragility of the space environment and the challenges to the long-term sustainability of outer space activities, in particular the impact of space debris;

13. *Stress* the need to look more closely into how advanced space research and exploration systems and technologies could further contribute to meeting challenges, including that of global climate change, and to food security and global health, and endeavour to examine how the outcomes and spin-offs of scientific research in human space flight could increase the benefits, in particular for developing countries;

14. *Emphasize* that regional and interregional cooperation in the field of space activities is essential to strengthen the peaceful uses of outer space, assist States in the development of their space capabilities and contribute to the achievement of the goals of the United Nations Millennium Declaration;[b]

15. *Confirm* the need for closer coordination between the Committee on the Peaceful Uses of Outer Space and other intergovernmental bodies involved in the global development agenda of the United Nations, including with respect to the major United Nations conferences and summits for economic, social and cultural development;

[b] General Assembly resolution 55/2.

16. *Call upon* all States to take measures at the national, regional, interregional and global levels to engage in the common efforts to use space science and technology and their applications to preserve planet Earth and its space environment for future generations.

Annex II

Terms of reference and methods of work of the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee

I. Introduction

1. In The Space Millennium: Vienna Declaration on Space and Human Development,[a] the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space recognized the importance of space science and space applications for improving our fundamental knowledge of the universe, and improving the daily lives of people worldwide through environmental monitoring, management of natural resources, early warning systems to help mitigate potential disasters and support disaster management, meteorological forecasting, climate modelling, satellite navigation and communications. Space science and technology make a major contribution to the well-being of humanity and, specifically, to achieving the objectives of global conferences of the United Nations that address various aspects of economic, social and cultural development. Space activities therefore play a vital role in supporting sustainable development on Earth and the achievement of the Millennium Development Goals. Hence, the long-term sustainability of space activities is a matter of interest and importance not only for current and aspiring participants in space activities, but also for the international community as a whole.

2. The space environment is being used by more and more States, non-governmental organizations and private sector entities. The proliferation of space debris and the increased possibilities of collisions and interference with the operation of space objects raise concerns about the long-term sustainability of space activities, particularly in the low-Earth orbit and geostationary orbit environments.

3. The Committee on the Peaceful Uses of Outer Space, through its work in different fields, has a significant role to play in examining and enhancing the long-term sustainability of outer space activities in all its aspects. In 2009, at its fifty-second session, the Committee decided that the Scientific and Technical Subcommittee should include on its agenda, starting at its forty-seventh session, in 2010, an item entitled "Long-term sustainability of outer space activities".[b]

4. At its forty-seventh session, the Subcommittee recalled the importance of ensuring the safe and sustainable future use of outer space and noted, in accordance with the workplan related to this item, that a working group should be established to support the preparation of a report on the long-term sustainability of outer space activities, the examination of measures that could enhance the long-term sustainability of such activities and the preparation of an appropriate set of

[a] *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19–30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.

[b] *Official Records of the General Assembly, Sixty-fourth Session, Supplement No. 20* (A/64/20), para. 161.

voluntary best-practice guidelines (hereinafter "the guidelines") focused on practical and prudent measures that could be implemented in a timely manner to enhance the long-term sustainability of outer space activities.

5. At its 735th meeting, on 18 February 2010, the Subcommittee established the Working Group on the Long-term Sustainability of Outer Space Activities.

6. A meeting of the Working Group was held during the fifty-third session of the Committee on the Peaceful Uses of Outer Space with a view to further developing its terms of reference and a method of work.[c]

7. The working paper containing the proposal of the Chair for the terms of reference, method of work and workplan for the Working Group was before the Committee as document A/AC.105/L.277.

II. Terms of reference

8. The Working Group will examine the long-term sustainability of outer space activities in the wider context of sustainable development on Earth, including the contribution to the achievement of the Millennium Development Goals, taking into account the concerns and interests of all countries, in particular those of developing countries, and consistent with the peaceful uses of outer space.

9. The work will take into consideration current practices, operating procedures, technical standards and policies associated with the long-term sustainability of outer space activities, including, inter alia, the safe conduct of space activities throughout all the phases of the mission life cycle.

10. The Working Group will take as its legal framework the existing United Nations treaties and principles governing the activities of States in the exploration and use of outer space, in particular article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the "Outer Space Treaty"), which was adopted by the General Assembly in its resolution 2222 (XXI), opened for signature on 27 January 1967 and entered into force on 10 October 1967.[d]

III. Objective and outputs

11. The objective of the Working Group will be to identify areas of concern for the long-term sustainability of outer space activities, examine and propose measures that could enhance sustainability in all its aspects, including the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries.

12. The Working Group will prepare a report on the long-term sustainability of outer space activities containing a consolidated set of current practices and operating procedures, technical standards and policies associated with the long-term sustainability of outer space activities, including, inter alia, the safe conduct of space activities. On the basis of all the information collected, the Working Group

[c] A/AC.105/958, paras. 181 and 183.

[d] United Nations, *Treaty Series*, vol. 610, No. 8843.

will aspire to produce the guidelines, which could be applied on a voluntary basis by States, either individually or collectively, international organizations, national non-governmental organizations and private sector entities to reduce the risks to the long-term sustainability of outer space activities for all participants in those activities and to ensure that all countries are able to have equitable access to outer space and the resources and benefits associated with it. The report and the guidelines shall be submitted to the Scientific and Technical Subcommittee for its consideration.

13. The guidelines should:

(a) Create a framework for possible development and enhancement of national and international practices pertaining to enhancing the long-term sustainability of outer space activities, including, inter alia, the improvement of the safety of space operations and the protection of the space environment, giving consideration to acceptable and reasonable financial and other connotations and taking into account the needs and interests of developing countries;

(b) Be consistent with existing international legal frameworks for outer space activities, referred to in paragraph 10 above, and should be voluntary and not be legally binding;

(c) Be consistent with the relevant activities and recommendations of the Committee and its Subcommittees, as well as of other working groups thereof, United Nations intergovernmental organizations and bodies and the Inter-Agency Space Debris Coordination Committee and other relevant international organizations, taking into account their status and competence.

IV. Scope

14. Topics for examination by the Working Group under this agenda item could include:

(a) Sustainable space utilization supporting sustainable development on Earth:

(i) The contribution of space science and technology to sustainable development on Earth, early warning of potential disasters and support for management of disaster-related activities;

(ii) The concept of sustainable development extended to the domain of outer space, including the avoidance of harmful contamination of celestial bodies;

(iii) Equitable access to outer space and to the resources associated with it, as well as to the benefits of outer space activities for human development;

(iv) International cooperation in peaceful uses of outer space as a means of enhancing the long-term sustainability of outer space activities and supporting sustainable development on Earth;

(b) Space debris:

(i) Measures to reduce the creation and proliferation of space debris;

(ii) Collection, sharing and dissemination of data on functional and non-functional space objects;

(iii) Re-entry notifications regarding substantial space objects, and also on the re-entry of space objects with hazardous substances on board;

(iv) Technical developments and possibilities regarding space debris removal;

(c) Space weather:

(i) Collection, sharing and dissemination of data, models and forecasts;

(ii) Capabilities to provide a comprehensive and sustainable network of sources of key data in order to observe and measure phenomena related to space weather in real or near-real time;

(iii) Open sharing of established practices and guidelines to mitigate the impact of space weather phenomena on operational space systems;

(iv) Coordination among States on ground-based and space-based space weather observations in order to safeguard space activities;

(d) Space operations:

(i) Collision avoidance processes and procedures;

(ii) Pre-launch and manoeuvre notifications;

(iii) Common standards, practices and guidelines;

(e) Tools to support collaborative space situational awareness:

(i) Registries of operators and contact information;

(ii) Data centres for the storage and exchange of information on space objects and operational information;

(iii) Information-sharing procedures;

(f) Regulatory regimes:

(i) Adherence to existing treaties and principles on the peaceful uses of outer space;

(ii) Review of the regulatory framework and the tools for the use and transfer of space technologies within international cooperation and international turnover of controlled space-related goods;

(iii) National regulatory frameworks for space activities;

(g) Guidance for actors in the space arena:

(i) Technical standards, established practices and the acquired experience for the successful development and operation of space systems throughout all the phases of the mission life cycle for all classes of space objects, including microsatellites and smaller satellites;

(ii) Technical and legal capacity-building for developing countries.

15. The above topics could be clustered to allow more efficient consideration of related matters. Topics could also be prioritized in terms of the need for action in

the near term (less than 3 years), medium term (3-5 years) and long term (more than 5 years). One way to consider the topics could be to determine the risk factors posed to the sustainability of outer space activities under each topic and then perform a risk assessment of those risk factors.

V. Method of work

16. The Working Group will invite contributions from States members of the Committee, as well as invite contributions from and/or consider and decide on appropriate liaison with, United Nations intergovernmental bodies, such as the Conference on Disarmament, the group of governmental experts on transparency and confidence-building measures in space activities to be established in implementation of General Assembly resolution 65/68, the Commission on Sustainable Development, the International Civil Aviation Organization, the International Telecommunication Union and the World Meteorological Organization, and relevant intergovernmental organizations, such as the European Space Agency, the European Organization for the Exploitation of Meteorological Satellites, the Asia-Pacific Space Cooperation Organization and the Group on Earth Observations.

17. The Working Group will invite contributions and consider inputs of information from international organizations and bodies, such as the Consultative Committee for Space Data Systems, the Inter-Agency Space Debris Coordination Committee, the International Space Environment Service, the International Organization for Standardization, the International Academy of Astronautics, the International Astronautical Federation and the Committee on Space Research. It is understood that inputs of national non-governmental organizations and private sector entities will be obtained through relevant States members of the Committee. The Working Group will decide on the inputs to be incorporated into its work.

18. The Working Group should avoid duplicating the work being done within these international entities and should identify areas of concern relating to the long-term sustainability of outer space activities that are not being covered by them.

19. The Working Group will take into account discussions within the Committee and its Subcommittees on the long-term sustainability of outer space activities, as well as progress made by the other working groups of the Subcommittees. Efforts should take into account, but not duplicate or reopen, the activities and recommendations being undertaken in the Working Group on the Use of Nuclear Power Sources in Outer Space and the work of the Subcommittee and the Inter-Agency Space Debris Coordination Committee on orbital debris mitigation.

20. If, during the examination of topics within the scope of the Working Group, there are new issues raised that were not previously addressed by the Subcommittee or its related working groups, the Working Group may decide to raise such issues to the Subcommittee for further consideration.

21. The Working Group will meet during the annual sessions of the Scientific and Technical Subcommittee. The Working Group will also use opportunities provided by intersessional coordination events, such as meetings, teleconferences, electronic meetings and workshops, as feasible and agreed.

22. The Working Group may decide to establish expert groups to focus on one or more of each of the agreed areas of work in order to expedite the work of the Working Group as a whole.[c] The expert groups would meet on the margins of and/or during the sessions of the Scientific and Technical Subcommittee and the Committee, and at other times to be agreed in advance by the expert groups, preferably at the session of the Scientific and Technical Subcommittee. The expert groups will likewise use opportunities provided by intersessional coordination events as provided for in paragraph 21 above and as agreed by the Working Group. States members of the Committee and intergovernmental organizations with permanent observer status with the Committee would be invited to nominate experts to participate in the activities of the expert groups. The expert groups would agree on the appropriate status, reliability and relevance of the information to be provided to support the deliberations of the Working Group, which would consider inputs received and make any necessary decisions regarding those inputs.

VI. Multi-year workplan

23. The indicative workplan under the item "Long-term sustainability of outer space activities" for the period 2011-2014 will be as follows:

2011 Develop terms of reference, method of work and workplan. Identify a point of contact for each State member of the Committee represented in the Working Group. Review the work done to date on this issue and prioritize future tasks. Invite States members of the Committee and, subject to the observance of relevant provisions of paragraphs 16 and 17 above, organizations having permanent observer status with the Committee and experience in space activities to provide information in 2012 on their experiences and practices that might relate to the long-term sustainability of outer space activities and on how they envisage work under the topic. Establish on a provisional basis the expert groups and commence preliminary planning of their activities for 2012.

2012 Hold a general exchange of views among States members of the Committee and intergovernmental and non-governmental organizations having permanent observer status with the Committee on the topics encompassed within the scope of work. Invite States members of the Committee to provide inputs from their national non-governmental organizations and private sector entities. Hold a workshop at which States members of the Committee and intergovernmental and non-governmental organizations having permanent observer status with the Committee provide information on their experiences and practices in the conduct of sustainable space activities (presentations and discussions to be conducted in the official languages of the United Nations). Hold consultations at the session of the Scientific and Technical Subcommittee and during the intersessional period with States members of the Committee and with intergovernmental and other international organizations having experience in space activities and

[c] See A/AC.105/987, annex IV, paras. 8-11.

those considering or initiating involvement in space activities to provide information on established practices and proposed measures to enhance the long-term sustainability of outer space activities. Commence consolidation of information gathered. Initiate development of a draft outline of the report to be produced by the Working Group.

2013 Encourage States members of the Committee to review and assess domestic practices regarding all aspects of enhancing sustainability of outer space activities. Invite States members of the Committee to include in their delegations representatives of national non-governmental organizations and of private sector entities having experience in space activities to provide information on their experiences and practices in the conduct of sustainable space activities at a workshop to be held in conjunction with the fiftieth session of the Subcommittee (presentations and discussions to be conducted in the official languages of the United Nations). Develop a draft report and an outline of the draft set of best-practice guidelines for submission to the Subcommittee in 2014.

2014 Consider the draft report and the draft guidelines at the Subcommittee's fifty-first session. Finalize the report and the set of best-practice guidelines for presentation to and review by the Committee. Determine whether the workplan should be extended to cover potential future work. If the workplan is not extended, discontinue the Working Group.